

This Month in

DW
and

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FIELDS SERVED BY DW

The publication in which shipper, carrier, receiver, warehouseman and equipment manufacturer meet on common ground to obtain and exchange ideas and suggestions for more efficient and economical distribution of raw materials and finished products. D and W is a clearing house of information for all who are interested in:

SHIPPING . . .

by air, highway, rail and water, of raw materials and finished products of all kinds, from points of origin to points of ultimate destination. D and W insists that efficiency and economy are as imperative in transportation of commodities as in manufacturing and selling.

HANDLING . . .

of raw materials and finished products, in bulk, in packages, and in palletized units, for and during production, transportation, storage and distribution. D and W submits that handling costs are a vital factor in determining profits.

WAREHOUSING . . .

of raw materials, finished products and miscellaneous supplies for any or all of the following reasons: as collateral for loans; to anticipate seasonal buying; to obtain lower rates by making bulk rather than l.c.l. shipments; to have spot stocks readily available at important market centers; as an aid in developing new markets. D and W maintains that, for efficient and economical distribution, intelligent and practical warehousing is indispensable.

DISTRIBUTION . . .

of anything anywhere from points of origin and production to points of ultimate use and consumption whether sectional, national or international. D and W takes the position that more efficient and economical distribution is the present major problem of modern business.

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This Matter of Rates

WHILE much of the current agitation for revision of freight rates probably is political, one cannot dismiss it merely for that reason. This matter of rates is not just a political issue. Political smoke invariably is caused by smoldering economic fire. To confuse effects with causes often leads to serious trouble.

There are valid reasons for some of the present dissatisfaction with freight rates, and it is simply common-sense to admit it. A goodly number of traffic experts, economists and businessmen, for sometime past, have been critical, not of railroad rates only, but of motor carrier rates and classifications as well. In the opinion of many competent men, simplification would benefit carriers as well as shippers.

It has been manifest for sometime that motor carriers made a mistake in their early days in following railroad classifications too closely. As a traffic manager recently told the Junior Traffic Club of Chicago, "simplification of motor carrier class rates to meet motor carrier needs is one of the most important problems confronting the motor transportation industry today. Many motor carriers feel that present classifications are wholly unadaptable to motor carrier rates." (See *D and W*, June, p. 32).

In similar vein, a member of the Wisconsin Public Service Commission recently suggested a tariff schedule based on air-line distance between points, regardless of route traveled, or computation according to mileage on public highways or railways between specified points. Such revision of rate making principles, the commissioner stated, "would establish the routes of common motor carriers upon a more logical basis and their service upon a more efficient and economical foundation." (See *D and W*, June, p. 35.)

Let us hope that the airlines do not repeat the mistakes of the motor carriers. There is no reason why the airlines should hamper themselves by obsolete and ground-bound precedents. If they apply the same bold and resourceful pioneering to the development of air cargo as they have in the field of aeronautics they should be able to establish an entirely new type of rate structure for air cargo. Anything less is unworthy of them.

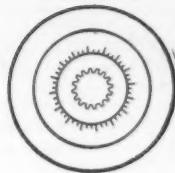
As a suggestion, why wouldn't it be feasible to have a base rate for a given number of pounds per cubic foot, with a sliding scale for packages of higher density, plus extra charges for perishability, contamination and higher valuation?

Why shouldn't rates, whether ground or air, be based on cost of operation rather than on a carrier's competition, or the ability of a commodity to pay the cost? The ultimate user or consumer pays in the long run anyway, either directly or indirectly.

From present indications, there will be many refinements in distribution after the war, particularly in all forms of transportation. If this assumption is logical, and if present

Editorials

'... around every circle another can be drawn... every end is a beginning . . . '



dissatisfaction with rates and classifications is a foreshadowing of impending change, we suggest that remedial action now by the carriers themselves, in the direction of simplification, may prevent coercive and detrimental legislation in the future. Such a move would be intelligent, politic and foresighted. Indeed, the carriers might even surprise themselves by a fresh and, as far as humanly possible, unbiased re-examination of the whole question.

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Organization Is Needed

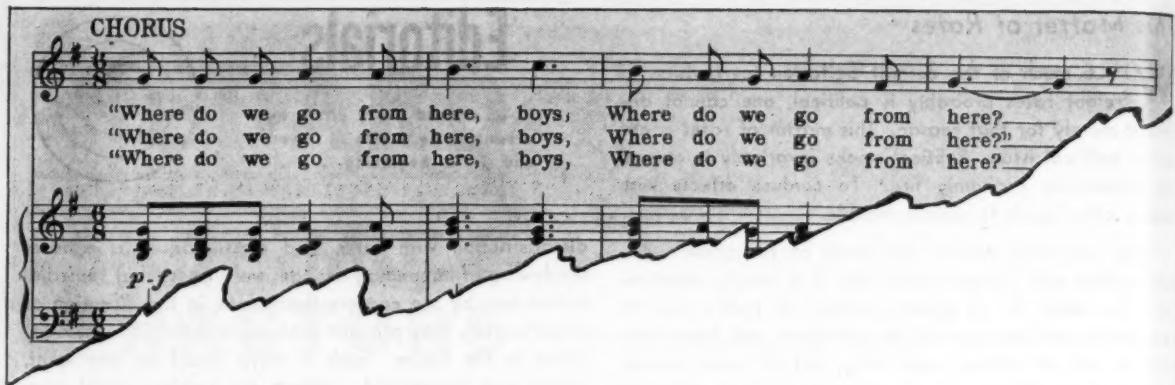
THE war has done a great deal for materials handling methods and equipment. Under the pressure of events, new methods have been devised and improved equipment has been developed. Many people who formerly never gave much thought to handling problems are now materials handling conscious.

The Army and Navy have taught thousands of young men how to handle, transport and store vast quantities of materials in ways never attempted before. When those young men return to civilian life they will bring with them new skills and a breadth of practical experience that should be invaluable, and which should enable us to produce and distribute goods more efficiently and economically.

For 25 years *D and W* has advocated mechanical handling rather than man handling of materials. In recent years we have intensified our efforts for more efficient and economical materials handling, and have presented voluminous and diversified evidence of the trend in this direction. There is abundant proof that we have been instrumental in aiding many of the new developments, and, while, of course, this is highly gratifying, we are not vain about it; for we consider it a part of our job.

Now that manufacturers of materials handling equipment have established themselves, so to speak, as a distinct and essential industry, is it not about time for them to organize themselves as an industrial group?

After the war there will be plenty of reasons for intelligent cooperation in research, in sales promotion, in the establishment of basic standards and practices. Now is the time to lay the foundations for an organization representative of the whole industry, both for its own good and for the benefit of present and potential users of materials handling equipment. Other industries equally competitive have done it. Why shouldn't the materials handling equipment industry?



Where Do We Go From Here?

Will the materials handling equipment industry maintain the position it has gained during the war, or will it allow itself to slip back into industrial nonentity for lack of foresight, organizing ability and intelligent cooperation? Its opportunities have never been greater. If it fails to organize itself as an industry its future will be a repetition of the disintegrating process it experienced after the last war.

IT is seldom that we see conditions repeating themselves in practically identical circumstances, yet this apparently is happening today in the materials handling equipment industry.

In 1917, materials handling had moved from the restricted limits of the handling of bulk supplies only, such as coal, ore, sand, gravel, etc., into an era where new types of conveyors were being developed for the handling of packaged supplies, and for the handling of materials through various production operations.

An Association Was Formed

The industrial truck, the hand and power lift truck and skid system, small industrial cranes, and many other mobile units, had been built for the war effort and had been found practical in a wide variety of operations. The industry had become conscious of itself. A trade association was formed, and extensive plans were made to maintain the position the industry had won by its contributions to the war effort.

Unfortunately, these plans were not carried out. The post-war depression saw many of the manufacturers of this equipment going out of business. Then came the common labor shortage. Again the materials handling industry forged to the front.

Engineers Became Interested

By 1928 there was a professional division in The American Society of Mechanical Engineers known as the Materials Handling Division. Engi-

By MATTHEW W. POTTS
Materials Handling Editor

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neers became interested because materials handling pointed a definite way to solve the common labor shortage, to reduce production costs, to utilize space better in factories and warehouses, to promote safety and reduce the number of industrial handling accidents, and many other advantages through the practical application of mechanical materials handling principles.

There Was a Steady Growth

There was a steady growth of the use of materials handling equipment during the production years 1923 to 1929. Many plants established materials handling departments, studied new production operations and made changes to use more mechanical equipment for handling materials from one production step to another.

The principles of materials handling, especially in connection with conveyors, were incorporated in production machines used for plating, cleaning, washing, bottling, etc. The advent of the crawler tractor with bulldozer attachment, front-end scoops, and of large graders and scrapers, introduced better materials handling methods in the contracting and construction field.

Then the Depression Came

Then came the depression which made manpower plentiful. Mechanical

methods were set aside, and the trend was to return to the "pick-and-shovel" gang, the two-wheel hand truck, and hand handling of materials. At this point there was a decided lack of foresight on the part of materials handling equipment manufacturers. They stopped advertising; they reduced sales forces; they reduced the development of new equipment. In fact they crawled into a hole and pulled the hole in after them.

So far, we have stated the case of what actually happened. It is logical to ask: "What could have been done?" Let's not argue the mistakes of the past. It is the future that concerns us now. Let's try to prevent the same thing from occurring again under similar circumstances. We find today that the materials handling equipment industry has just been going through a cycle like the one we have described.

The Situation To-day

Today the industry is larger; its production capacity has been increased a thousandfold; its products are being distributed all over the world; the training programs of the Army, Navy and Marines have acquainted thousands of future industrial personnel with the many advantages of using materials handling equipment.

It is only logical therefore, to ask: "Where do we go from here?"

At present, no one is in a position to state definitely what is going to happen, or what method will be employed in disposing of surplus ma-

terials handling equipment which will be on hand when hostilities end.

In the reconversion period, a number of industrial plants will be able to revamp their conveyors and production materials handling equipment to fit new operations. Tractors, trailers, fork trucks, industrial cranes, hand trucks, can all be reconverted easily to new production operations to meet demands for domestic products. The return to industry of millions of service men should have the effect of reducing labor shortages, and this will affect adversely the introduction of more materials handling equipment, on the basis of saving labor.

Post-War Surpluses

As stated above, the materials handling equipment industry has an expanded production capacity which executives will want to keep going at a maximum rate, in order to keep costs down. However, they are going to be faced with the most severe competition of second-hand machines, surplus equipment, delays in reconversion plans, and many other factors which are beyond their control. They should now be asking themselves: "Where do we go from here?"

Some of the more progressive executives have already asked this question, and have tried to set in motion plans to organize the industry so as to do a real engineering and sales promotion job. But they are not meeting with success, because of the diversity of equipment and the fact that it serves all industries.

Need of Unity

In a number of cases one form or type of equipment is in direct competition with another. It is necessary, however, for the industry to become solidified, so as to present a united front, if it is to maintain its present position.

Labor is likely to oppose the use of materials handling equipment as soon as manpower is available to do the job. Manufacturers must show conclusively that their equipment does not create unemployment. They must show how and why it protects workers by reducing industrial accidents, by eliminating fatigue, and by promoting the workers' general welfare in various ways. It must be shown that men no longer need nor want to perform heavy, laborious lifting, shifting and handling of materials. It must be demonstrated that by using materials handling equipment, the operators thereof enter the classification of semi-skilled or skilled workers, and therefore earn more money. The industrial plant that uses good materials handling methods is able to produce more at a lower cost, to pay its employees higher wages, thereby creating a larger buyers' market, which, in turn, creates more employment.

Need of Education

It is going to be necessary to tell labor and the public more about materials handling, and to point out its advantages. This can be done by good and consistent advertising, by illustrated lectures, and through many

other mediums which are available and which have proved their worth. Materials handling equipment manufacturer's should prepare now a plan to prevent a repetition of what happened after the last war. At present, all signs point to a repetition, and now is the time for manufacturers to stop and decide where they go from here.

The Road Is Open

The road is open to them. Thousands of new prospective customers have been created by the training programs instituted by the armed forces among officers, enlisted men, and even civilian personnel. When these men go back into industry, they will want to employ modern methods on their handling operations. But they will need the support of materials handling equipment manufacturers in promoting and demonstrating why the new and improved methods should be employed. They will have to sell management, they will have to sell labor, and they will have to do it on an impartial basis rather than from the standpoint of some particular piece of equipment.

Drifting Will Be Fatal

Are the materials handling equipment manufacturers ready to take this step? Have they a prepared plan, or are they just going to drift and

devise makeshift plans on the spur of the moment? If they simply drift, there is no question as to where they are going from here. They can fill in the space themselves.

However, if they will set forth now a definite program of training, and education to develop materials handling industry consciousness, the opportunities before them are unlimited.

There are still hundreds of industrial plants that have no modern methods or materials handling equipment. There are still thousands of places where the use of even two-wheel hand trucks will materially reduce the burdensome labor which is now being performed by man. We don't need to think of foreign markets until we have developed our own domestic markets.

Opportunities Numerous

It is going to be necessary to have closer coordination between the different types of common carriers, so that modern methods of packing and shipping, which utilize mechanical handling equipment, can be transferred easily from one type of carrier to another.

Certain industries are going to have to modernize their methods of distribution to eliminate the necessity of breaking down unit loads. Warehousemen will have to equip themselves with modern materials hand-

(Continued on page 58)

The Question Is Unequivocal

TO-DAY, the materials handling equipment industry is larger than ever; its capacity to produce has increased a thousandfold; its products are being distributed all over the world; the training programs of the Army, Navy and Marines have acquainted thousands of future industrial personnel with the many advantages of using materials handling equipment.

Is it not logical to ask: Where do we go from here?

In the reconversion period after the war the industry will be faced with the most severe competition of second-hand machines, surplus equipment, and by delays in reconversion plans and other factors beyond its control.

Is it not logical that its members should be asking themselves: Where do we go from here?

Manufacturers should be preparing a plan now to prevent a repetition of what happened after the last war.

The road is open to them. Thousands of new prospective customers have been created. There are still hundreds of industrial plants that have no modern handling equipment. Certain industries will have to modernize their distribution methods to eliminate the necessity of breaking down unit loads. Warehousemen will have to equip themselves with modern handling equipment to handle new types of packaged merchandise. Air cargo has opened a new field for loading and unloading equipment. New assembly lines for new products will require materials handling principles.

All of these things call for coordinated effort on the part of materials handling equipment manufacturers, and will require the best engineering, educational and advertising programs possible.

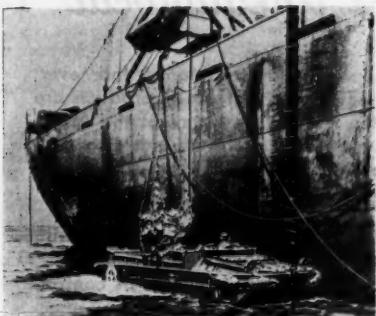
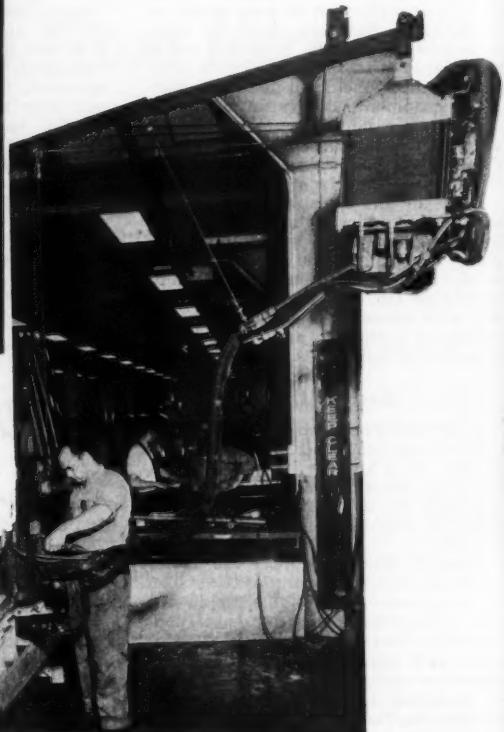
Now is the time for the industry to coordinate and unite in answering the question: Where do we go from here?

Materials



LEFT . . . Workman turning a slab broadside preparatory to further rolling on a 140-in. sheared plate mill for heavy plates. U. S. Steel in '43 produced one-third of nation's ship plates.

BELOW . . . Portable spotwelder used at Glenn L. Martin Co., Baltimore. It consists of spotweld machine and transformer counterbalanced on small beam pivoting from overhead trolley travelling along 50-ft. I beam. Trolley is driven by sprocket and chain-powered by 1/3 h.p. electric motor



LEFT . . . Success in establishing beach head is to get lots of men and materials ashore fast. GMC "Ducks," Army's amphibious jeeps, are amazing emergency handlers.



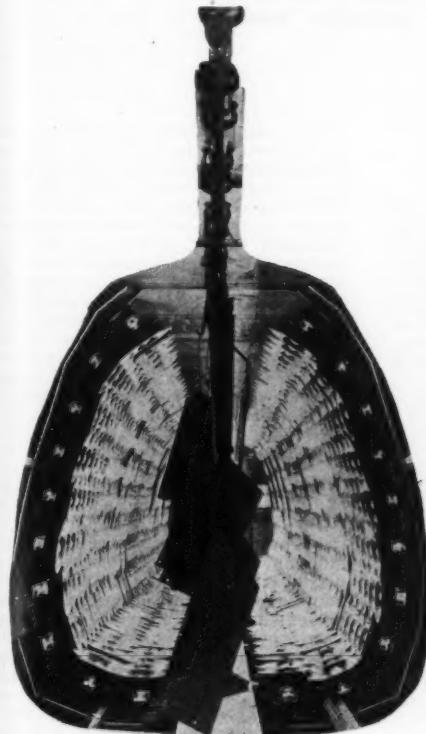
ABOVE . . . High speed self-propelling utility cranes with capacity up to 10,000 lb. are becoming familiar sights in west coast ship yards and war plants.



ABOVE . . . New dual purpose Hyster "75" fork truck has working speed of 12 m.p.h., capacity of 7500 lb., can turn in its own length and has tractive power of auto truck.

Materials Handling . . .

BELOW . . . Floor and toe board stampings going through a suspended infra-red drying oven at the White Motor Co. plant at Cleveland.



ABOVE . . . Over million and a half jeep parts pass weekly along this 300-ft. belt conveyor at Willys-Overland plant. Streamlining packaging methods has cut costs 20% and tripled shipments.

WAR has made America materials handling conscious in many and varied ways. These pictures vividly emphasize the fact and present a current commentary of unusual interest.

BELOW . . . Baker center-control fork truck wheeling wrapped airplane engine into shipping line at Fairchild's Farmingdale plant.

INSET . . . Electric fork truck transporting two 1000 lb. bombs at Nebraska Ordnance plant.



BELOW . . . Packing shipment of 500-lb. bombs in box car at Firestone-operated bomb-loading plant near Omaha. Wooden bracings and steel strapping play an important part in this job.



From Producer to Consumer—In Plastic

It is believed that the use of plastics after the war may revolutionize packaging, storage, shipping and merchandising in numerous ways. Plastic coatings can be used to enhance sales appeal; for color; for protection; for easy identification. Plastics may even eliminate packaging of some products, and may enable many items to be stored indefinitely. In addition, plastics seem likely to present new difficulties and opportunities for materials handling equipment.

DEVELOPED to meet an important wartime need, transparent plastic coating of metal parts and products offers interesting post-war possibilities from the standpoint of distribution and merchandising.

One of the great department store chains has had some experimental work done in plastic coating of hardware products. Probably nothing of this sort may be expected to reach the retail market for the duration, because the plastic base and other ingredients are critical materials and must be reserved for essential war uses, but the laboratory work now under way points toward the possibilities.

Enhanced Sales Appeal

Enhanced sales appeal is the most obvious direct advantage of the transparent coating. When the war is over, economists agree, the public will expect products that are clearly new. Our bulk of advertising and discussion of the postponed technical developments of the war years has led the average man-on-the-street and woman-in-the-home to expect a new standard and style of living in which plastic—the very word is almost magic to millions today—will play a great part.

Manufacturers, though, generally understand that immediate post-war production will be of things that are not too much different, in the general consumer field, from what was made before.

Some things can't be changed. Take chisels, for instance. At present, there is little likelihood that a tool that has to meet the specific uses a chisel does will be made of plastic—it will still be a steel product. Chisels happen to be one of the specific experimental items selected by the chain for plastic coating.

Coated Products

By applying such a coating to the product, it is dressed up in a new form that gives it sales appeal for the first time in years. Chisels, or hundreds of other items, have little sales appeal in themselves. On some types of products, dressing up the product by packaging is possible, but on others, the nature of the item or the manner in which it is to be sold eliminates the possibility of cartoning. Here, plastic comes into its own.

The coatings which will be available allow the use of dyes in the formula, so that a transparent coating of a desired shade—red, green, blue, grey,

BY HAVILAND F. REVES

or otherwise, may be achieved. A manufacturer may thus identify his products by a particular shade of coating, or he may identify various grades by different colors, making stock-handling easier, and facilitating public identification of his product or lines, a factor that may be readily tied in with advertising, especially with the use of advertising in color.

Color Values

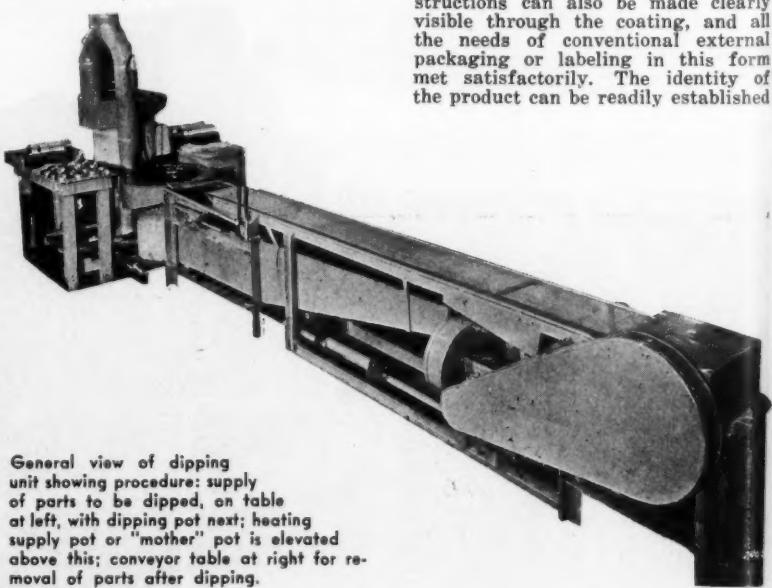
The use of transparent coatings allows the product itself to be seen through clearly. If it is, typically, a hardware product, the intrinsic nature of the product does have some definite value of suggestive appeal when it is viewed by the prospective customer. Present display methods in some departments could be revolutionized by such a development, and the customer would be attracted first by the colorful plastic wrap, and, secondly, once he was on the spot, by the variety of tools or products displayed in the various coatings and degrees of brilliancy. At present, he is attracted only by the bulk display of the items on a counter.

The coating, however, need not be transparent. In fact, existing wartime production has concentrated upon an opaque formula which meets immediate ordnance needs. For some display purposes, the manufacturer or merchandiser may prefer an entirely opaque product. The experiences of commercial canners with transparent glass containers instead of cans in the past two seasons have shown that there are reasons on both sides of this argument. Individual merchandisers will base their decision upon the nature of their product and their method of distribution and merchandising.

Easy Identification

More important from the standpoint of distribution is the possibility of ready identification of a product in its wrapping—without added external labeling. If the nature of the item is not clearly discernible at a glance, it may be made readily apparent by the use of suitable numbering or descriptive labeling on the product itself. Where many similar items are being handled, this means a tremendous improvement in ease of stocking, inventory check, and all forms of handling, including both shipment and ultimate passing out to the retail customer.

Special shipping or handling instructions can also be made clearly visible through the coating, and all the needs of conventional external packaging or labeling in this form met satisfactorily. The identity of the product can be readily established.



by visual inspection, without opening a carton, and the protective wrap remains intact.

Superior protection in transport and stocking is a feature of the new transparent coatings, in addition to their sales appeal and convenience in handling and identification.

Developed for War Needs

The present coating was developed to serve rugged wartime needs, at the General Motors Truck and Coach Division, Pontiac, Mich., by Walter E. Turner, manager, military parts planning department. Various types of metal parts made at the plant are being handled at a rate of 325,000 individual pieces a day, a quantity that gives no indication, perhaps, of total volume, but clearly shows that the new coating can be handled and applied in a manner that should meet the production needs of any manufacturer when peacetime production lines resume operation.

Present plastic coating is accomplished by hand-dipping each part in the heated solution of plastic for about two seconds, suspended by a string fastened on by a tying machine. It is then dipped into a solution of cold water which hardens the plastic in about five seconds, and placed on a conveyor for removal. The coating achieves its permanent degree of hardness and protective qualities in about 10 to 15 seconds.

Use of Conveyor

When the application of coating can be standardized with a given production process, it will be feasible to apply the conveyor system to the dipping process itself. A part suspended on a conveyor can be passed through the pot of heated plastic for the requisite period, then air-cooled as it travels on the conveyor, eliminating the necessity of the present water dip.

The labor-saving with a conveyor dip is obvious. But even with hand-dipping, the labor saving is running from 60 to 90 per cent over previous methods of packaging the same types of parts. With manpower shortage a vital problem today, this possibility of saving is of great importance to packaging engineers. The older method of packaging required hand wrapping in an un-waxed paper, then

wrapping in a no-oxide cloth, and, finally, double-dipping in wax for a hermetic seal. Many parts also required a preliminary immersion in a corrosion preventive.

Protective Qualities

Primary objective of this wrap, of course, is protection of parts against corrosion and other hazards to be met in field use or shipment. The new plastic wrap gives this protection, more fully than the older, more laborious method, in many respects. It protects against corrosion or rusting, and against humidity or temperature hazards—from 40 deg. below to 300 deg. F., and against immersion in salt water, all factors that must be faced in the present day shipment of metal parts or products.

This wrap can be quickly adapted



Hand-stripping of the plastic coating from a gear.

can be conveniently dipped, can be treated by this method. There is no limitation if suitable-sized dipping pots are used. Plainly constructed pieces without spaces in which air would be trapped in the dipping are most suitable for such coating. Holes up to 3/16 in. or openings up to $\frac{1}{8}$ in., as on spark plugs, can be successfully coated at present, and one portion of a product or part may be dipped if the entire part is not to be so covered. This indicates, incidentally, a possibility of dipping different portions of post-war products in different colored coatings for added sales appeal.

A few parts are now being given special protection by corrosion preventive under the coating, if much trapped air is involved. Other parts, such as bearing assemblies, are coated with the grease packed into them, ready for immediate use upon stripping of the coating. The grease itself serves to keep out any air.

Severely Tested

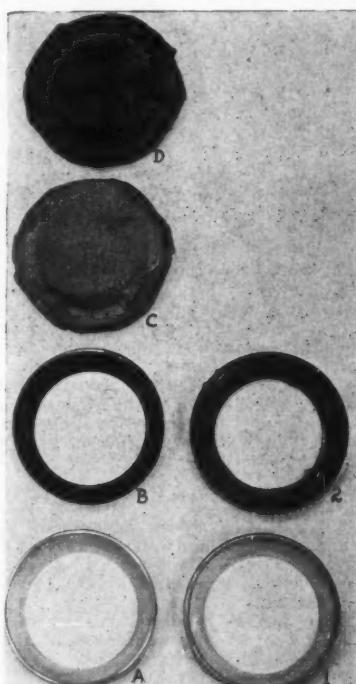
Such a high degree of protection will be of obvious advantage in post-war foreign trade, and for the protection of parts which may be warehoused or stocked otherwise for long periods of time, especially in adverse climatic conditions.

For more familiar domestic use, however, the plastic coating offers protection of the surface against accidental damage in shipment and handling. The coating is not easily damaged. A severe test was given at the GMC plant to a group of test samples. They were road-tested in a truck for days over rough roads, and then subjected to a vibrating machine giving more intensive agitation than the products would ever be subjected to in the most unfavorable shipping conditions. Damage to the coating, and consequently to the protected surfaces, was negligible in this severe test.

With such a useful coating available, conventional methods of packaging and shipping may be drastically changed for products to which it may be adapted. At present, for instance, the coated parts are separately cartoned in the familiar manner, and then crated. This is necessary when special external identification of ordnance code or part numbers, rather than the manufacturer's part number, is necessary.

May Affect Packaging

However, the tests which have been
(Continued on Page 98)



All photos courtesy GM

Comparison of saving in new wrapping procedure. Left: old method with four steps, from bottom up: cleaned, corrosion preventive, wrapping in Grade C, and double-dipping in wax. Right: new method with two steps: cleaned and plastic application. These steps are saved on all precision parts, except bearing assemblies, for which one additional step is required.

by other manufacturers for immediate wartime needs if their products can be so protected, and need the protection. Delivery of the basic material, of course, is upon a carefully controlled basis.

Any type of product, of a size that

Note: The product being used by GMC, an ethyl cellulose protective compound, is being supplied by Hercules Powder Co., Wilmington, Del., with Seibert Varnish Co., Detroit, as the converter; also by Dow Chemical Co., Midland, Mich.

Hand-dipping of small part held by string.





FIG. 23—Grab for handling bundles of sheet steel from car to storage.

WIRE stocks in coils are stored on edge as shown in Fig. 13. The coils are taken from the car and placed in position by fork trucks.

Scales of modern dial type installed throughout the receiving area are supplemented by numerous portable types for weighing and counting.

Fabricating machines are shown in Fig. 14. In the power units there are two horizontal cold-cut band saws, one shear, and one abrasive cutting machine. In addition, there are hand cutting off tools for rods up to $\frac{3}{8}$ in. diameter and strip up to $\frac{1}{4}$ in. thick x 2 in. wide. This is shown in Fig. 15.

Pallet Racks

Packages as they come from the different vendors are in various shapes and sizes. Pallets loaded with these packages could not be piled more than one high. Fig. 16 shows a pallet rack designed to hold four pallets, any one of which is accessible.

Accumulation trucks are shown in Figs. 5 and 17. One type is shown in the latter illustration being used in combination with the fork truck.

Fork Trucks

Fork trucks such as shown in Fig. 18 are used extensively. These are time and man hour savers.

Batteries in all trucks and trac-

design for industry

Further details in how General Electric Co., has created a model design for industry in its Order and Stores Building at Schenectady, N.Y. Instead of putting up a building and then trying to fit a handling system into it, the building was constructed around the handling system. This is the concluding installment of a two-part article.

part 2

By MATTHEW W. POTTS
Materials Handling Editor

• • •

tors used in the building are charged by the company's own unit shown in Fig. 19.

Palletized material requiring inspection is held in the section shown by Fig. 20. If no inspection is required, it is placed immediately into stock on the original pallet as shown in Figs. 21 and 22. Small lots are placed in retail bins.

Trailer loads bearing bar and coil stocks are cleared in the same manner except that cranes are used to place materials in position as shown in Fig. 11.

Withdrawal Orders

Withdrawal orders are placed by telephone or mail and are cleared over the control records. They then pass through the carrier tubes to the stockroom.

The interested accumulator selects, weighs, or counts, the material and places it on the hand truck. When the yard delivery truck arrives at the pit, transfer is made to large truck Figs. 17 and 18.

Palletized materials are illustrated in Figs. 21 and 22. This entire stock is moved in and out by one man with a fork truck. Location records are maintained of materials on pallets for availability.

Retail from hardware racks is accomplished from the front end of the aisles as may be seen in Fig. 5. Replenishing is done from the opposite end.

Localize Major Activities

An effort has been made to localize major activities into as small an area as possible. An average of 65 per cent of the help is concentrated in our retail section. This arrangement permits better control of help and eliminates the necessity of employees traveling from one end of the building to the other.

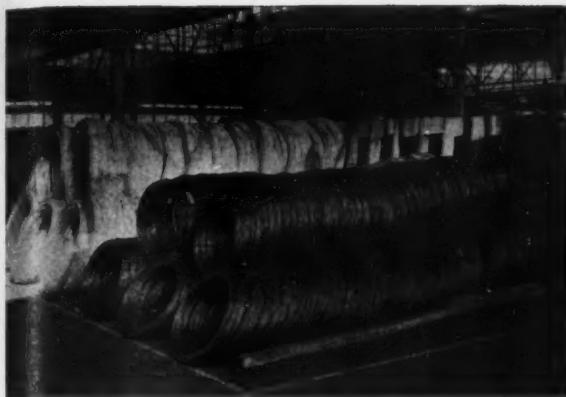
Large tonnages of sheet materials are brought in by gondola cars which are unloaded by crane attached to which is a special grab for handling. The cars are unloaded adjacent to the storage and placed directly in stock

FIG. 21—Pallet storage.



FIG. 22—Pallet storage racks.





Reading from top to bottom, left to right: FIG. 13. Wire in rolls, piled with fork truck. FIG. 14. Fabricating machines for retail deliveries of bar and sheet stock. FIG. 24. Metal storage showing pallets loaded by shipper for unloading at melting station. FIG. 17. Special transfer truck used in conjunction with fork truck. FIG. 18. Yard automobile truck being loaded in pit by fork truck. FIG. 16. Pallet racks for stacking uneven loads. FIG. 20. Miscellaneous hardware at inspection point.



FIG. 28 — Boxes of edgewise - winding copper strapped by vendor to facilitate handling in box car with fork truck.



FIG. 19 — Battery charging station.

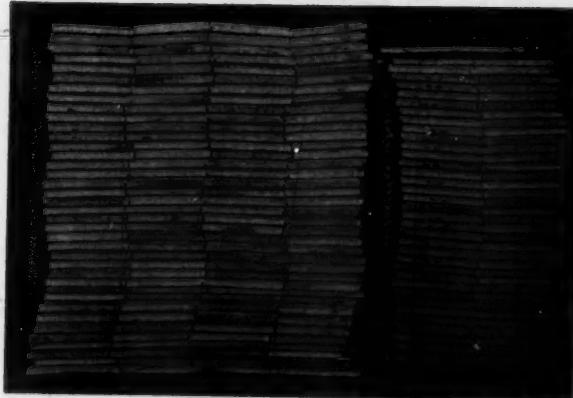


FIG. 26 — Knocked-down wire - bound boxes bundled and wired to pallets by vendor to facilitate unloading from box car by fork truck. Car doorway has been cleared.



FIG. 27—Sheet steel storage showing grab for handling in the background.

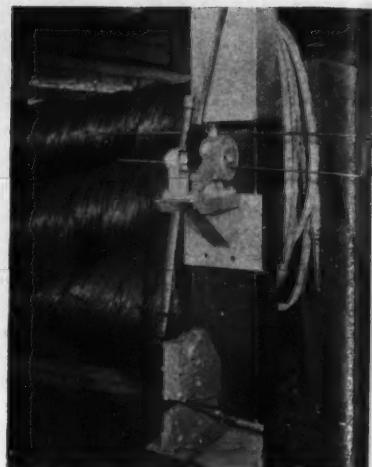


FIG. 15—Cutting tools for bar stock

from the car as indicated in Fig. 23.

Protected Loads

By the cooperation of the vendor, special packaging of sheet, bar, and pig metal materials are delivered in gondola cars, unboxed and consolidated in suitable crane lifts which are broken down into size after unloading. Figs. 24, 25, 26, 27, and 28, illustrate this.

The material in these loads is amply protected by waterproof paper and strapping. After the shipping units are broken down the material is stored by crane. Size units are delivered as received when possible.

Modern Conveniences

Care has been taken to see that the office help in the Order & Stores Division have available light, air, and pleasant working quarters. An office is conveniently located in the center of the building on the main floor for use by foremen, clerks, and inspectors.

Over this warehouse office are modern washrooms and toilet facilities and a locker room for male factory help. Every convenience is provided to make working conditions comfortable and agreeable to employees and the proper materials handling equipment.

(Continued on Page 49)

FIG. 25—Pig lead properly bound to facilitate handling with fork truck.



GE Special Handling Equipment

EFFICIENT materials handling is merely common sense applied to practical problems, as these illustrations show:

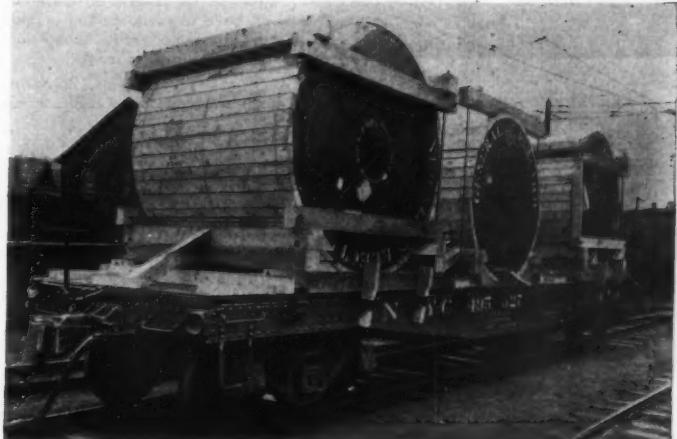
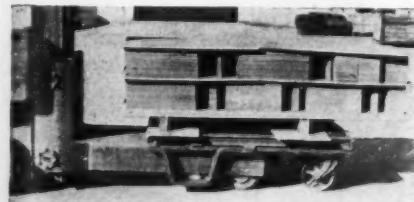
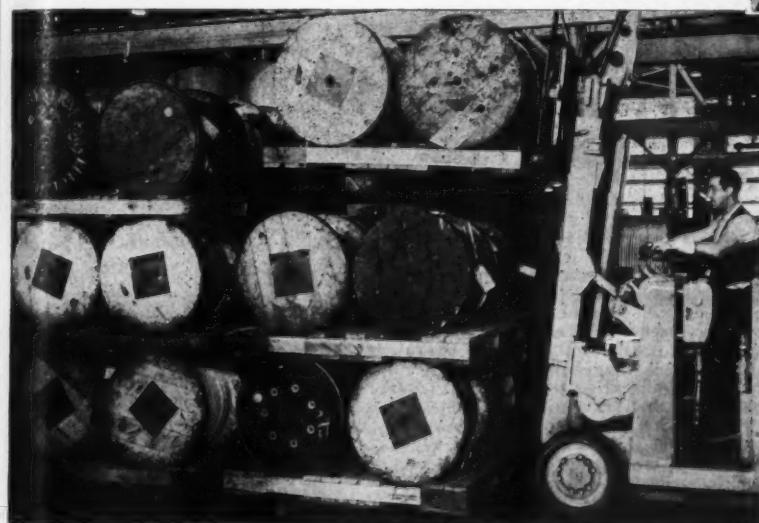
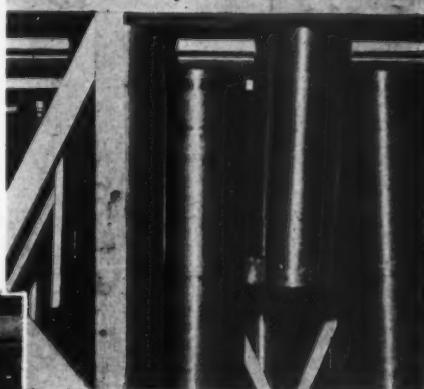
RIGHT: Wooden storage racks for motor shafts at GE Schenectady Works save space, handling time and minimize damage. Previous practice of laying shafts on floor required three times more floor space than racks. Hung from their flanges in racks, the shafts are handled easily by crane.

BELOW: Pallets made specially for cable reels save handling time and storage space. Formerly, reels moved by overhead crane, could not be stacked on top of one another.

RIGHT CENTER: Blocks had to be used to keep studs, pipes, tote boxes, etc., from sliding off trucks like this until operator Ed Clark suggested pin arrangement shown. Four $\frac{3}{4}$ -in. pins on each side and two at open end can be adjusted with cotter pins from position flush with truck deck to 3-in. above it.

LOWER LEFT: By replacing two legs of a steel skid platform with a pair of casters as shown, F. H. Horton, transportation supervisor at GE Pittsfield Works, enabled loads of 10 tons to be handled with a 3-ton lift truck. Casters, welded to skid, support weight of half the load.

LOWER RIGHT: Faced with problem of shipping cable reels weighing 47,855 lb. each, F. E. Stemm of GE designed special cradles which took care of all thrust and side sway. To distribute weight, two large reels were placed at each end of flat car and smaller reel of 28,000 lb. was placed in center.



Planned Materials Handling . . .

An Essential of Planned Production

Materials handling is not a thing by itself; it must be studied and perfected as a part of the over-all production plan. The study only begins at the plant. It should proceed from there all the way back to where materials originate so that all parts of the production plan may be coordinated into a complete, simple, fully integrated system.

DURING the late lamented lush days, when every garage had two cars in it, both full of gas, John Jones, manufacturer, had worked out a factory routine which was the envy of all who saw it operate. Though his costs were decidedly "his business," they were so low that they created feelings of desperation in the ranks of his competitors.

Not the least factor in Jones' mastery of volume production at low cost was a materials handling system which, by and large, defied all efforts to improve it. Not that many well-trained minds didn't tackle that assignment, including the agile mind of Jones himself; for you could say this about John: he was never satisfied. No matter how good a thing was—be it product, machine, material, method—it couldn't be perfect; and never did

FIG. 1—Shipments originally were made in this type of box.

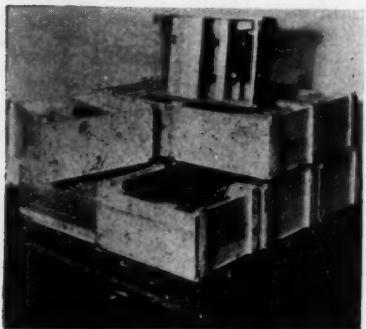


FIG. 2—This is the redesigned pallet used for shipment of 36 valves.

By EZRA W. CLARK
*Vice President-General Manager
Clark Tractor Division*

○ ○ ○

John Jones relaxes his vigilant search for ways to make it better.

A Simple Discovery

Fundamentally, the success of the Jones method of handling materials was due to one exceedingly simple discovery of a rather obvious fact: proper materials handling must be planned and developed as an integrated part of planned production. There it is: materials handling is not a thing by itself; it must be studied and perfected as a part of the over-all production plan.

Before the war, in the Jones plant was to be found every conceivable labor saving and time saving method and device. Material schedules were planned down to minutest details, and strictly observed. Materials flowed in on punctually kept time tables, were stored where they could be most easily fed to the production lines, with a minimum investment of man-hours and dollars. The best proof of the system's effectiveness was that it worked, and worked well.

When the war came, Jones & Co.,

INDUSTRIAL architecture in the future will have to be aware of materials handling, will have to revise ceiling heights, and plan how to make effective, economical use of the 'air rights' existing indoors.—

Ezra W. Clark

along with thousands of others, old and new, enlisted in the country's service, became a unit in America's vast war production.

"Make it better, make it in enormous quantities, and make it faster." That was the assignment given to American industry. Industry did all three.

Materials, Methods, Designs

Material, methods, designs, all were studied to find better ways, short cuts, faster methods. And along with every

other phase and operation of modern manufacturing, materials handling came in for its share of attention. Materials had to be handled faster, more efficiently, in order to get the work done on time.

John Jones, always on the alert, tackled the problem, and got results. He found, for one good example, that a major unit purchased complete from an outside supplier, reached his plant securely crated, two units to the crate. After removal from the crates, these units were first uncrated, then put in stock on low shelves for easy accessibility, and fed as needed to the assembly line.

Time studies revealed that crating required nearly 20 minutes and uncrating took another 20 minutes.

(Continued on page 100)

FIG. 4—A knocked down view showing construction of unit pallet.

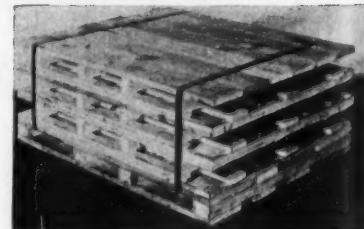
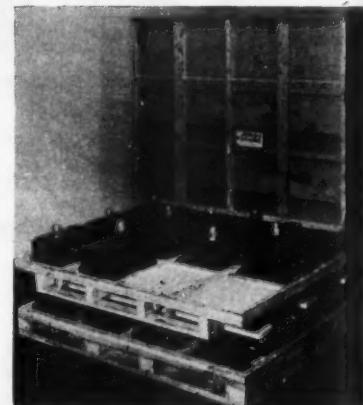
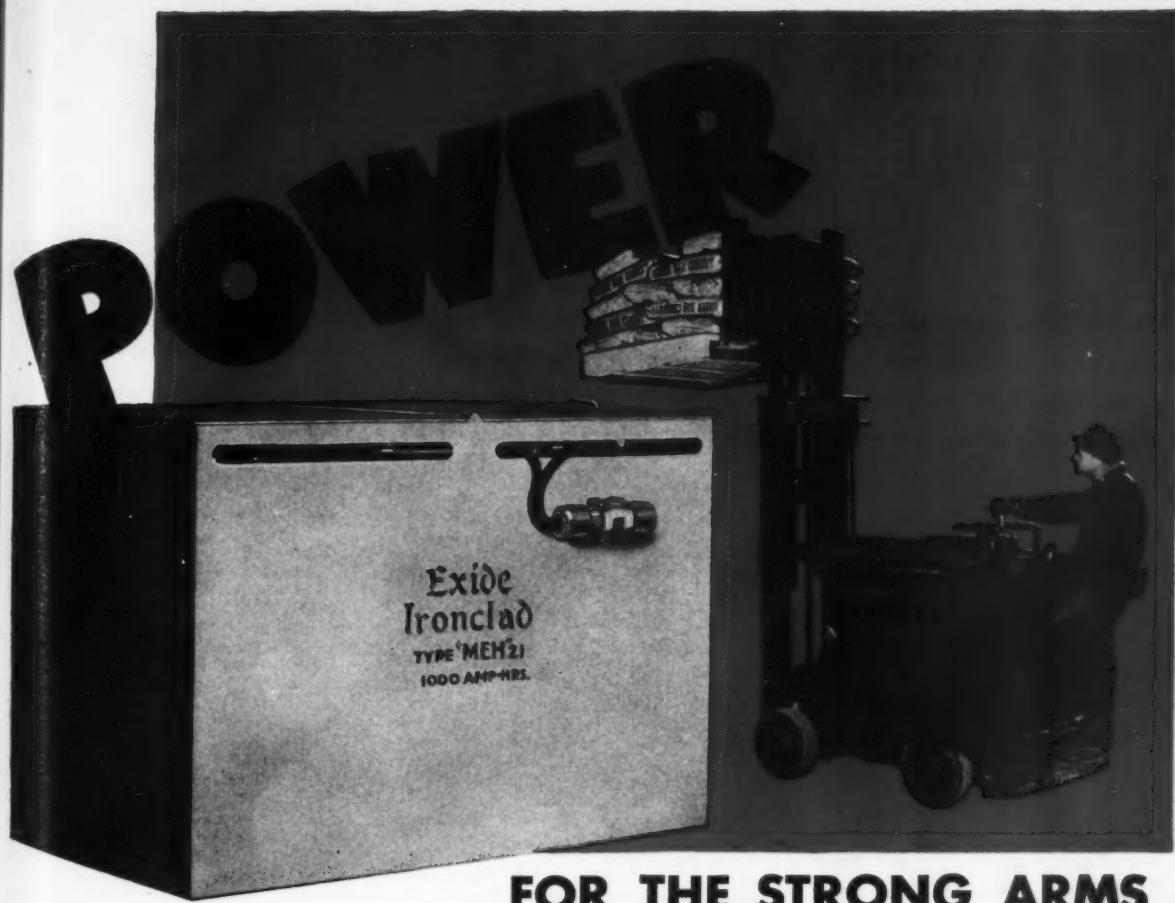


FIG. 5—Knocked-down unit pallet strapped for re-shipment to source.



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An Exide-Ironclad delivers its power at uniform voltage to assure constant hauling speeds. There is always a giant surge in reserve when an Exide powers your battery propelled vehicles.

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Exides are kept charged by the simplest method ever devised. With the Exide Charge Control Unit all you do is connect battery to the charging source and turn a knob.

For loading, unloading and load-shifting, you just can't beat an electric industrial truck, powered by an Exide-Ironclad Battery. These trucks, designed to handle material with the greatest efficiency, combined with rugged, Exide-Ironclad Batteries, give you a materials handling system that is streamlined to the utmost.

Exide-Ironclads are widely recognized as a source of never-failing power. They provide extra efficiency for an already highly efficient operation. Exides have long been known for their extreme dependability, long-life, and simplicity of maintenance. The steps you take to modernize and streamline with Exide-Ironclads mean economies that are yours for years to come.

Write us for a FREE copy of the bulletin "Unit Loads," prepared by The Industrial Truck Statistical Association. It tells how to cut handling costs up to 50% . . . covers latest developments in materials handling . . . and includes actual case histories.


Exide
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THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32

Exide Batteries of Canada, Limited, Toronto

A MODERN MANUAL OF MATERIALS HANDLING EQUIPMENT



This is the tenth installment of Mr. Potts' modern manual of materials handling equipment. It is being published serially in D and W exclusively. Each major type of handling equipment will be named, defined, illustrated, described and its usual applications explained.

By MATTHEW W. POTTS
Materials Handling Editor

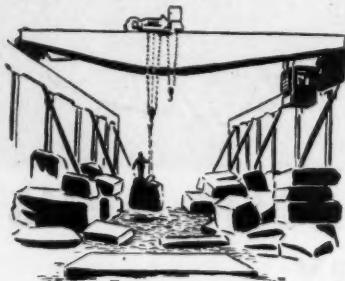
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All drawings by Harry T. Fisk

Bridge Crane

Definition—A crane having a bridge along which a trolley carrying a hoist and a load may travel. The bridge may or may not be capable of travel.

Description—The bridge crane gets its name from its type of construction.



Bridge Crane

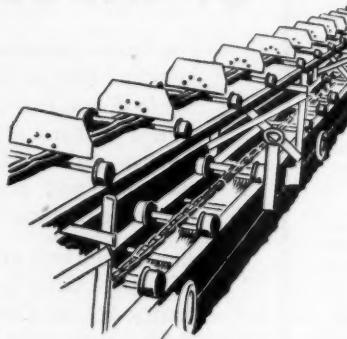
tion because it is generally built of bridge girders consisting of one or more I-beams for short spans and light loads, or of box sections formed of steel plates and angle irons or channels, or of I-beams, channels, or angles with lattice type of structure for medium or wide spans and for heavy loads. Generally, these cranes are used within buildings, in which case the bridge spans from column to column, and operates on tracks supported on the columns at each end of the bridge. However, they can be used outside just as well, as shown in the illustration, in which case the tracks are supported from fixed columns erected for operation of the crane. A number of bridge cranes have been built with electric controls supported by flexible cable, so that they can be operated from the ground. However, on the larger and heavier units, the control cab is generally constructed at one end of the bridge, or it can be mounted on the crane trolley, which travels on top of the bridge, so that the operator is always directly over the hook. In a number of cases, the bridge crane is supported on end trucks or carriages, which ride on top of the rail, or runway track. In other instances, they are suspended below the track in which

(Continued on page 110)

Flight and Drag Conveyor

Definition—This type of conveyor consists of a series of scrapers or flights, connected at regular intervals to one or more strands of chain or cable passing around drive wheels at the ends of the run and dragging materials between the flights in a trough.

Description—A flight or drag conveyor can be constructed in several different ways, and because of its construction, is known under different terms. For example, if it was only a single strand of a special long pitch and wide chain, it is known as a "chain drag conveyor," the chain dragging in the trough to move the materials. On the other hand, the chain frequently connects the flights together in order to apply power, but the flights are supported by independent



Flight and Drag Conveyor

ent rollers running on two tracks, as shown in the illustration. The lower run is in a trough and the flights are dragging the material in the trough. This is called a "flight drag conveyor." In some instances the flights are supported by chain or cable on each end of the flight, in which case it is known as a "double strand flight conveyor," or, the flights may be mounted directly on a single strand chain, and the chains and the flights are submerged in the material being moved in the trough. Generally, the trough is on the bottom run of the conveyor, and the return run or empty flights are

(Continued on page 55)

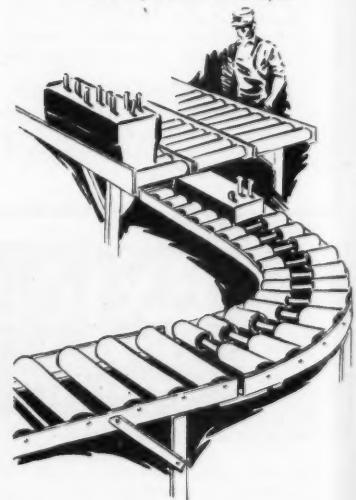
Gravity Roller Conveyor

Definition—A type of package carrying conveyor which supports the load to be conveyed on rollers, turning in fixed bearings and spaced at distances depending upon the size of the unit to be carried.

Description—The rollers in a gravity conveyor are made in several different types. One is known as the solid roller, which is all one piece of tubing with cups in the ends in which the bearings are mounted. Another type is known as the "double roller," in which two individual rollers are mounted on the same axle or shaft, but each is able to turn independently of the other. This is particularly helpful in making a differential curve. Another type is the conical roller which can be either single or double, depending upon the purpose for which it is being used. There are also specially shaped rollers with concave surfaces for handling ammunition shells, gas cylinders and other tubular materials. Most of the gravity conveyors are constructed with metal frames of angle or pressed steel channels for supporting the roller axles, and are built in 5 ft. and 10 ft. standard lengths, as well as in curved sections

(Continued on page 49)

Gravity Roller Conveyor



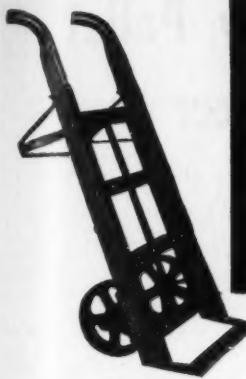


Fig. 16-24
Western Pattern Truck with heavy axle, rugged hardwood frame and steam bent handles. Two center straps.



Fig. 419 Jack—Fig. 421 Live Skid
Provides low-cost storage for merchandise that must be quickly moved at any time. Many advantages—compare before you buy.



Fig. 100
Barrel Truck. Here is a good example of what a specially designed truck for a specific use can do to speed up the work and make it easier. Send for special circular on Fig. 100 Barrel Truck.



Fig. 560 Swivel Caster
Nutting makes Semi-Steel and Rubber Tired Casters of every size and type.

Fig. 560 Swivel Caster
Nutting makes Semi-Steel and Rubber Tired Casters of every size and type.

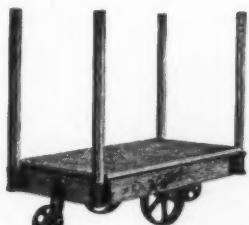


Fig. 11 Balance Type Truck
The veteran utility truck. Hardwood frame, platform, stakes. Turns sharp corners, swivels in own diagonal length. 7 sizes.



Fig. 138 Dolly

A heavy hardwood frame dolly for boxes, crates, etc. Double ball race swivel casters with metal or rubber tired wheels. Nutting makes all types of wood or steel dollies with capacities up to 4000 lbs.

SALSBURY turret truck



LIFT TYPE
Ideal for terminals, warehouses, long hauls in yards, large plants, ramp work, loading and unloading freight cars, trucks, etc. Lift type handles standard skids. Tractor type hauls trailer loads up to 12000 lbs. Cargo type for general utility use.



TRACTOR TYPE
Light in weight, ample power for 2500 lbs. up 15% grade, economical, low priced. Send for special circular on Salsbury Turret Truck. (Manufactured and distributed by Nutting under license of Salsbury Corp., Los Angeles, Calif.)



CARGO TYPE

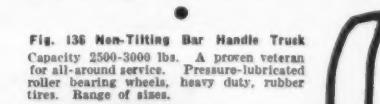


Fig. 136 Non-Tilting Bar Handle Truck
Capacity 2500-3000 lbs. A proven veteran for all-around service. Pressure-lubricated roller bearing wheels, heavy duty, rubber tires. Range of sizes.



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FLOOR TRUCK LEADERSHIP SINCE 1891



Improved Car Plate Lifter and 4-Way Pallet Designed by California QM Officer

THE combat equipment of our fighting men is constantly being improved and the mechanical handling methods, used to supply our men are continually undergoing changes in order to expedite the delivery of vital food, clothing and equipment, so that "Plenty-on Time" will always be a reality. Today in the many warehouses of the California Quartermaster Depot, Oakland Cal. two of the recent developments are being utilized to further the movement of vital supplies.

Car Plate Lifter

Both of these new improvements were originated and developed by the Commanding Officer of the California Quartermaster Depot, Col. Milton O. Boone. The first of these known as the "Boone car-plate lifter" is ingeniously simple, and at first glance one wonders that it has not been put to use before. It is a device which enables the easy transportation, placing and handling of the extremely heavy and cumbersome steel plates used as ramps between freight cars and loading platforms.

Formerly, these heavy plates which weigh up to 300 lb., required 3 or 4

men to handle. Moreover there was always danger of crushing fingers or straining backs. Now one girl and a fork truck can carry the plates any distance, and place them easily in any position with no physical strain or danger.

Steel loops, with a key handle, are inserted in appropriately shaped holes burned into the plate and turned 90 deg. either way to lock it in place. The loops are used in pairs and when installed make perfect apertures for the forks of a fork truck, which are run through them. The forks of the truck are raised enough to permit ample floor clearance and then the truck boom is racked back so that the plate slides on the forks.

Four-Way Pallet

Likewise, since the movement of material is the largest single activity of a supply installation, the second of these developments, known as the "Boone Four-Way pallet" (patent applied for) was designed to eliminate excess movements. The standard pallet has openings at only two ends for the entrance of the two forks of the fork trucks which means the trucks

can approach a tier of goods from but two directions.

The "Boone Four-way pallet," it is said retains all the advantages of the standard pallet and removes all its inconveniences. The Boone pallet has openings on all four sides and permits the entrance of the forks of the truck from any direction. The wooden cross members of the pallet are securely bolted to spacer blocks, which, it is said makes it stronger and more rigid than the standard one.

Advantages Claimed

Some of the advantages claimed for the "Boone" pallet are: accessibility is increased, time is saved and aisle traffic is materially reduced. Since the pallet may be approached from any direction, the number of necessary movements and approaches are lessened and a considerable amount of time is saved.

This approachability also reduces traffic, it is said, since two to four fork-trucks may be used on the same stack at the same time from four separate directions. Fire aisles may quickly be converted to traffic aisles if the necessity arises, and toppling or crumbling stacks are quickly remedied by fork trucks approaching the stacks from the shortest distance or from any direction. The net result of the four-way pallet is said to be stronger storage bed for commodities, a more expeditious means of handling materials, greater accessibility to stacks and considerable saving of time and man hours of labor.

Rapid Developments

The armed forces probably have made greater strides in the proper use of materials handling equipment since the United States entered the war than industry had during the whole preceding decade.

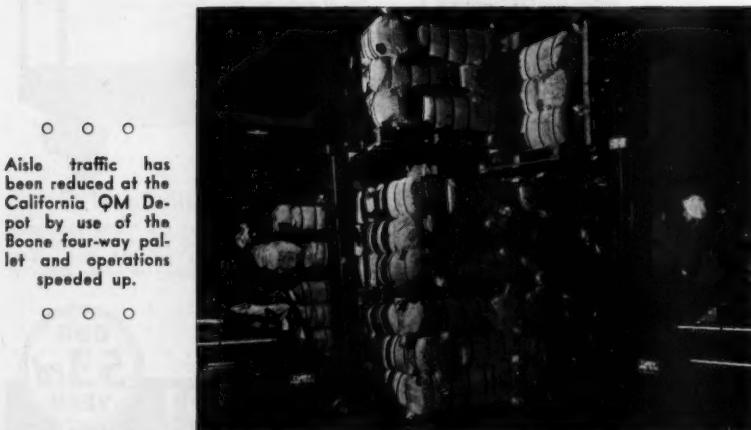
In pre-war years, according to materials handling engineers, the combined production of all the industrial truck and tractor manufacturers was approximately 2,500 to 3,000 units per year. To-day, many of the individual handling equipment manufacturers are building that many units each month.

According to the best estimates, when the war started there probably were 25,000 to 30,000 industrial trucks being used in American industry. The Army and Navy alone, to-day, are believed to be using a minimum of 75,000.

The fork-truck pallet method of handling freight has had an amazing growth in the past few years. The reason, of course, is obvious. This method reduces the manual handling of the pallet load to a minimum. It reduces costs, makes possible the maximum use of space, both cubic and square, increases safety, speeds handling, and cuts down man-hours.



○ ○ ○
Fork truck lifting a car plate by means of the Boone car plate lifter.
○ ○ ○

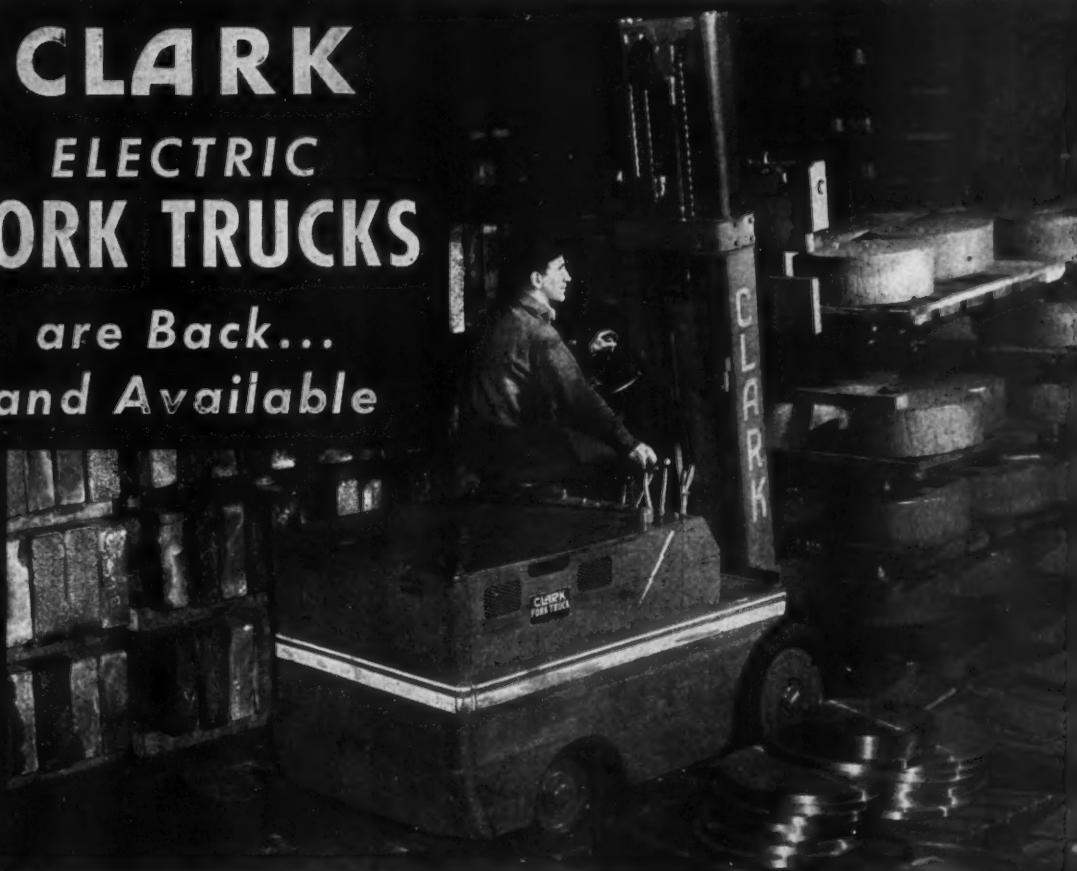


○ ○ ○
Aisle traffic has been reduced at the California QM Depot by use of the Boone four-way pallet and operations speeded up.
○ ○ ○

It's the Encore that Counts!

CLARK ELECTRIC FORK TRUCKS

*are Back...
and Available*



Concentrated effort on production of gas powered fork trucks for our Armed Forces curtailed the manufacture of *Clark Electric Fork Trucks* for a short time.

Increased productive capacity enables us to again serve the needs of Industry for dependable and proven electric fork trucks.

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If you need an electric fork truck NOW, phone, wire or write.



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BATTLE CREEK, MICHIGAN, U.S.A.

OTHER CLARK PRODUCTS—AXLES (Front and Rear) FOR TRUCKS AND BUSES • AXLE HOUSINGS • TRANSMISSIONS • METAL SPOKE WHEELS
ELECTRIC STEEL CASTINGS • GEARS AND FORGINGS • RAILWAY TRUCKS • BLIND RIVETS • HIGH-SPEED DRILLS AND REAMERS

DESCRIPTION OF OPERATION - MILK INVERTER "DESIGN A"



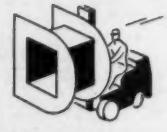
1. A truck with loaded pallet approaches the inverter. An empty pallet is placed upon the top of the load in an inverted position. The fork truck then places the load and pallets into the milk inverter.



2. The inverter is rotated one turn of 180°. The load is squared as it turns, and comes to rest on the pallet.



3. A truck removes the turned load. The date of turning should then be marked on the unit load. The empty top pallet is removed, and the turned unit load is ready to return to stock.



4. The inverter can be moved into operating position or into storage by lifting with the forks under the curved flanges of the inverter.

DESCRIPTION OF OPERATION - MILK INVERTER "DESIGN B"



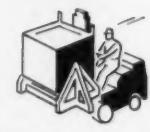
1. A truck with loaded pallet approaches the inverter. An empty pallet is placed upon the top of the load in an inverted position. The fork truck then places the load and pallets into the milk inverter.



2. The inverter is rotated one turn of 180°. The load is squared as it turns, and comes to rest on the pallet.



3. A truck removes the turned load. The date of turning should then be marked on the unit load. The empty top pallet is removed, and the turned unit load is ready to return to stock.



4. The inverter can be moved into operating position or into storage by lifting the entire unit with the forks placed under the rotating box.

Canned Milk Inverters

The inexpensiveness of the canned milk inverter makes it a practical device wherever this commodity is stored, even though its use may be infrequent. Once it is used, a tedious, expensive job is turned into a comparatively simple one, and considerable man-hours and time are saved.

THE ramifications of materials handling practices are rapidly disclosing new methods, short cuts, "home made" devices and equipment that meet universal acceptance. The Navy (Stock Division of the Bureau of Supplies and Accounts) has, through its Materials Handling Section and by officer specialists at domestic activities and advanced bases, disclosed many means of speeding the shipment of supplies, of increasing tons handled per man-hour and of coping with unusual conditions.

Used by the Navy

One of the devices used by the Navy to supplement mechanical handling equipment is the "canned milk inverter." This inverter is used in conjunction with fork trucks and palletized loads.

In the past, warehousemen could regulate shipments of evaporated milk, rotating with incoming supplies, but not exceeding the maximum stor-

age time of 45 days at a storage temperature of 65 deg. F., or 90 days at lower temperatures.

However, under present conditions, milk in many instances, remains in storage an excessive length of time, necessitating the cans to be inverted to reverse the direction of movement of fat globules in the milk substance, with the result that cream separation changes are thereby delayed.

Inexpensive

The inexpensiveness of the milk inverter makes it a practical device wherever this commodity is stored, even though its use may be infrequent. However, once it is used, a tedious,

expensive job is turned into a comparatively simple one. Considerable man-hours and time are saved.

Two Types

Two types of inverters, as illustrated, are approved by the Navy. One resembles a large cable reel or spool. The rectangular container is made to hold a pallet load of milk with an additional pallet on top of the load. It is operated by rolling the loaded inverter on the floor. Stops on the rim of the circular ends limit rolling action to one-half turn. A space approximately 20 ft. long the width of the inverter is required for operation. The inverter may be loaded or emptied from either end. One fork truck is sufficient for operation in event of equipment shortage. However more efficient operation is achieved by the use of two fork trucks.

A second type inverter has a rectangular container, open on one side. (Continued on page 50)

Diagrams and illustrations of the canned milk inverters described in this article are shown on page 50.

design for industry

(Continued from page 40)

ment is provided to make their handling work light and to provide the utmost safety on all handling operations.

Economical Handling

All along the line, the design of the new Order & Stores Building has been influenced by a desire to obtain progressive movement of materials and economical handling methods.

Special provision has been made for the safekeeping of valuable materials.

Built Around System

In this whole operation the idea has been to design the materials handling system and then construct the building or warehouse around the system, rather than to build a warehouse from a standard architectural plan and then try to fit the various handling operations to the building.

More and more, industry will be planning warehouses but first it should develop the proper handling system, rather than leaving this important operation until the last. When this is done, a properly coordinated relationship between the building, material stored in it, and the handling will be accomplished, as in the case of this new Order & Stores Building at the General Electric Co. plant at Schenectady, N. Y.

Gravity Roller Conveyor

(Continued from page 44)

of 45 deg. or 90 deg. as standard, and with switch sections and diverting sections which can be either manually or mechanically operated.

Application — Roller conveyors of the gravity type can be installed with a slight grade to take advantage of gravity power, or they can be installed on a level, and the loads pushed. They can be used in short lengths or long lengths, or developed into complete systems to serve a continuous movement of materials, and, by the use of power conveyors, for elevating when required, a considerable amount of the travel can be done under gravity power. It is important to consider the proper type and diameter of the roller for the size and weight of package to be handled, and the same is true regarding the spacing of the rollers and whether they should be of the single roller, double roller, or special shape. This conveyor can be used in warehouses, on piers and docks, in packing rooms, manufacturing and production assembly lines, wherever a continuous flow of materials has been established. Short sections can be mounted on portable stands if mobility is required.

Co-op. Buys Cannery

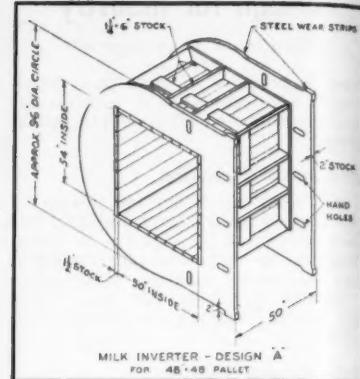
The Yakima Cannery, one of the largest in the Yakima Valley, Wash., has been purchased by Washington Canners Cooperatives. The transaction involved some \$180,000. (Has-kell.)



It's Model 12-HT—and this ruggedly-built, tireless "giant" is fully capable of handling the toughest loading, unloading, transporting, piling and storing jobs — hour after hour — at top speed. Every day, Ross Industrial Lift Trucks are saving huge sums of time and money by eliminating back-breaking labor in warehouses, industrial plants, and terminals. If your heavy material handling is causing a bottleneck, let our engineers show you how Ross Lift Trucks can eliminate the problem — at a great saving. Write today for Bulletin DW-74.

THE ROSS CARRIER COMPANY, Benton Harbor, Michigan
Branches: Seattle — Portland — San Francisco — Vancouver, B. C. — New York City — Hoboken, N. J.

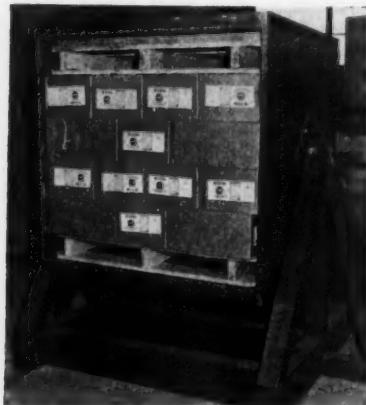




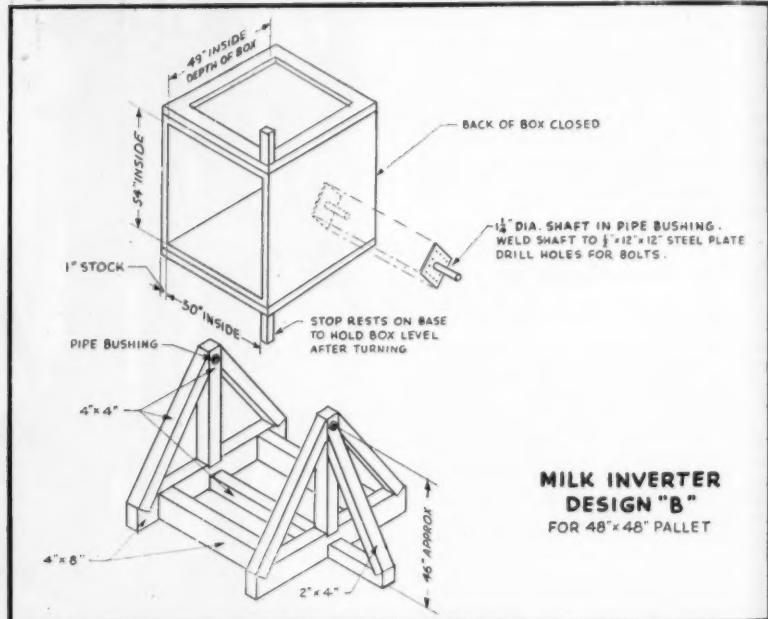
All illustrations authorized by Office of Public Relations, U. S. Navy.

ABOVE: Design A, cable reel type of inverter with design specifications.

BELOW: Design B, box type of inverter with design specifications.



It holds one pallet load of milk with an additional pallet on top of the load. The container is supported by two trunnions operating in bearings set



MILK INVERTER
DESIGN "B"
FOR 48x48 Pallet

in a rigid frame. Milk is inverted by turning the loaded container to inverted position on trunnions. It must then be unloaded from the opposite

side. This type requires the use of two trucks for efficient operation. An aisle space 9 to 10 ft. wide is sufficient for this inverter.

Tire Situation Still Critical

Notwithstanding America's huge synthetic rubber program, the nation still faces a critical shortage of tires for civilian use, the Office of the Rubber Director, War Production Board, said today in urging every automobile owner to conserve his present tires to the utmost.

The only answer to the tire shortage is strict conservation and the recapping of tires as soon as they need it, the Rubber Director said.

Expanding Economy

"I am a production man. I make things that people use. I am not a politician," Eric Johnston, president, Chamber of Commerce of the U. S., declared on his recent arrival at Moscow.

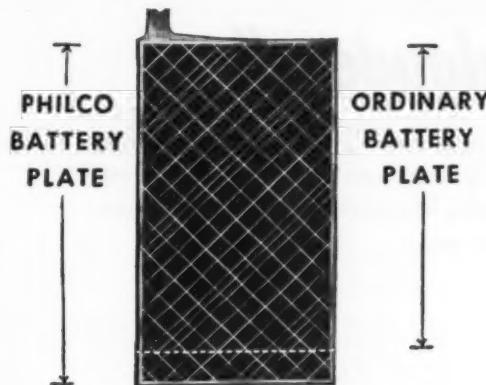
"I am interested in an expanding economy, being one of those business men who believe that we must have one in the post-war world. That means a greater exchange of goods and services between countries and a higher standard of living for people."

Washington Whsemen To Seek Higher Rates

Faced with increased operating costs, the Washington State Warehousemen's Assn. has voted to file a request with the State Department of Public Service for increased rates.

Howard F. Shiel, chairman of the merchandise division of the association, advised the public service department had suggested submission of cost data so consideration might be given new rates. (Haskell.)

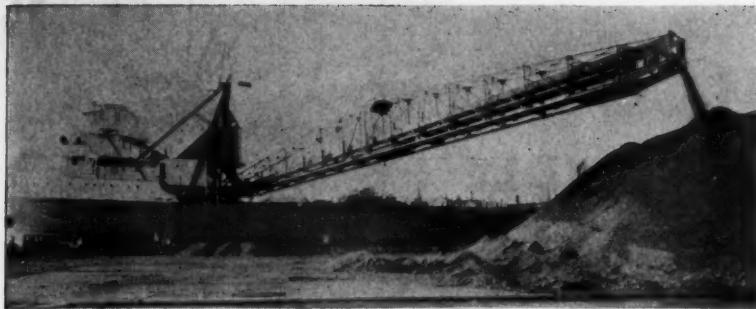
WHY PHILCO BATTERIES HANDLE 10% MORE TONS— MORE LOADS PER DAY



There's no mystery about why modern extra capacity Philco Batteries step-up the work capacity of your industrial trucks by 10% or more. There is a purely mechanical reason. Philco plates are larger. Their physical dimensions are greater. And a Philco is so constructed that it gives this 10% more power capacity in the *same* compartment space. That's why a Philco Battery, type for type, provides an extra reserve of power—why the voltage stays up longer—why the battery lasts longer. Ask for latest Philco Industrial Truck Battery catalog. **PHILCO CORPORATION, Storage Battery Division, Trenton 7, New Jersey.**

Specify
PHILCO
INDUSTRIAL TRUCK
BATTERIES

*Backed by 50 years of experience in
industrial storage battery development*



S. S. Charles C. West equipped with self-unloader.

"Self-Unloaders"

Manpower shortages, tonnage requirements, demands on carriers and wartime urgency combine to emphasize value of mechanical handling equipment and to hasten its development in new and various ways.

SHORTAGE of manpower has been felt especially in the unloading of coal from vessels at ports on the Great Lakes. Mechanical unloaders of all types are much in demand.

Many freighters, with self-unloaders, have been built recently in Wisconsin, notably at the shipyards of the Manitowoc Ship Building Co., at Manitowoc, about 90 miles north of Milwaukee. One steamer built by that firm for coal carrying, including the latest type of self-unloader, is the "Charles C. West," operated by the Reiss Steamship Co., Sheboygan, Wis., on Lake Michigan.

The self-unloader, shown in the accompanying illustration, unloads coal without the aid of any shore installation. The mechanical devices include belt conveyors, gates, pan conveyor and a long boom conveyor. Included also in this self-unloader are such smaller types of equipment as drives, clutches, hoppers, controls, structural supports, etc., designed by Stephens-Adamson Mfg. Co., Aurora, Ill.

The installation on the steamer "Charles C. West" consists of two 40 in. belt conveyors equipped with unit type carriers which run the entire length of the hold, one on the port side and one on the starboard. These two conveyors are each approximately 340 ft. in length and are located under the hopper bottom holds. They drain material from any part of the ship's

hold by a long series of rack and pinion type gates, which are located one under each hopper. Each gate can be opened or closed independently of the others.

The two long belts begin to rise as they near the end of their course and discharge into a common hopper. This hopper feeds a 96 in. pan conveyor with 74 ft. 3 in. centers. The pan conveyor is inclined at an angle of 45 deg. and emerges from the hold just in back of the pilot house.

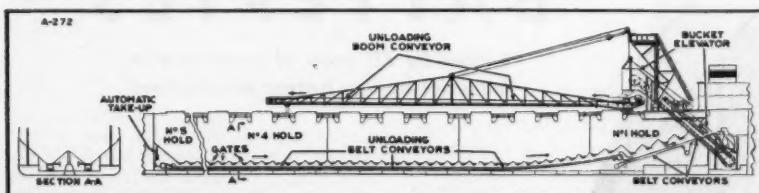
Material is elevated from the hold conveyor, and discharges by the pan conveyor to a 206 ft. boom conveyor, which is also a 48 in. wide belt conveyor. This huge boom is pivoted and swiveled at its bottom end and is supported by tripod structure and maneuvered by winches and cables into various positions out over the edge of the ship where it stacks the cargo in huge piles along the dock.

Clutch operation mechanism is centralized so that from one control station the various conveyors can be started and stopped at will.

The elevation drawing of this self-unloader equipment makes the operation of the apparatus clear.

Without the use of such a self-unloader, vessel operators say, many vessels would have been idle at ports, awaiting their turn to be unloaded.

Diagram showing self-unloader equipment setup.



New Uses for Cranes Developed by War

Wartime requirements have developed new uses for mobile lift and carry cranes. Two notable examples are said to be: the use of cranes with tier loader attachment for loading and unloading cargo planes, motor trucks, etc., and the use of mobile cranes on docks and piers for loading and unloading cargo in narrow runways and for transporting it between shipside and warehouse. Many of these cranes are used to tote one load and to push or pull another.

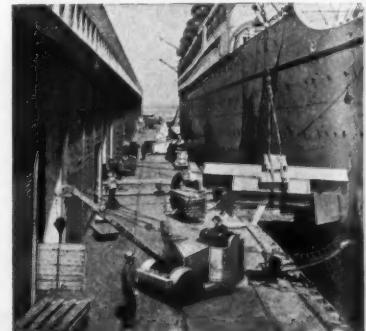
Some of the well known industrial firms reported to be using mobile cranes extensively are: the Ford Motor Co., Bethlehem Steel Co., Virginia Pulp & Paper Co., Carnegie-Illinois Steel Corp., and the Pittsburgh & Lake Erie Railroad, among others.

A current example, the Jaeger "Fleet Foot" crane loader, illustrated herewith, a product of the Jaeger Machine Co., Columbus 16, Ohio, is said "to be capable of lifting up to five tons with its telescopic 12-18 ft. boom, toting load at speeds up to 12



Special tier loader attachments for loading planes are now being used on mobile cranes.

m.p.h. and swinging full load 90 deg. to either side without need for outriggers. Ability to turn in as little as 10½ ft., and pass through 6½x8 ft. doorway, facilitates its use as a warehouse, dock and airport loader.



Cranes are being used successfully on narrow docks and piers, and for transporting cargo between shipside and warehouse.

Maximum drawbar pull of 6500 lb. is available for pulling or pushing loaded trucks or spotting cars. Boom load is centered on driven front wheels to give maximum stability and traction. Four transmission speeds are provided for all boom operations and travel."

Some materials handling engineers believe a more extensive use of mobile cranes is likely after the war because of pioneering work being done with cranes by the Army and Navy.



THIS BULLETIN GIVES *Valuable Information* ABOUT CRANES FOR YOUR PLANT

- ◀ Illustrates 24 different installations in specialized and general operations
- ◀ Tells which R & M cranes are best for various industries and uses
- ◀ Takes R & M cranes apart and explains construction and mechanism
- ◀ Shows tables and diagrams on clearances and capacities of R & M cranes.

R & M CRANES SAVE TIME, LABOR AND MONEY... 3 to 6 Months Delivery

Wherever loads are to be lifted and moved—in plant or yard—R & M cranes can handle the job with greater speed and at lower costs. They have been doing it for the last 14 years in every industry in the United States. Their dependability and economy is assured.

CONSIDER POSTWAR REQUIREMENTS NOW

In many industries, conversion to peace-time production will necessitate changes in plant set-up and crane requirements. Also, cranes will be available to many not now eligible under priorities. We suggest that you plan your postwar crane installations now.

Take it Up
with
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Please send me new 16-page R & M Hoist & Crane Bulletin No. 825 DW.
 Please have an R & M Hoist & Crane expert call on me.

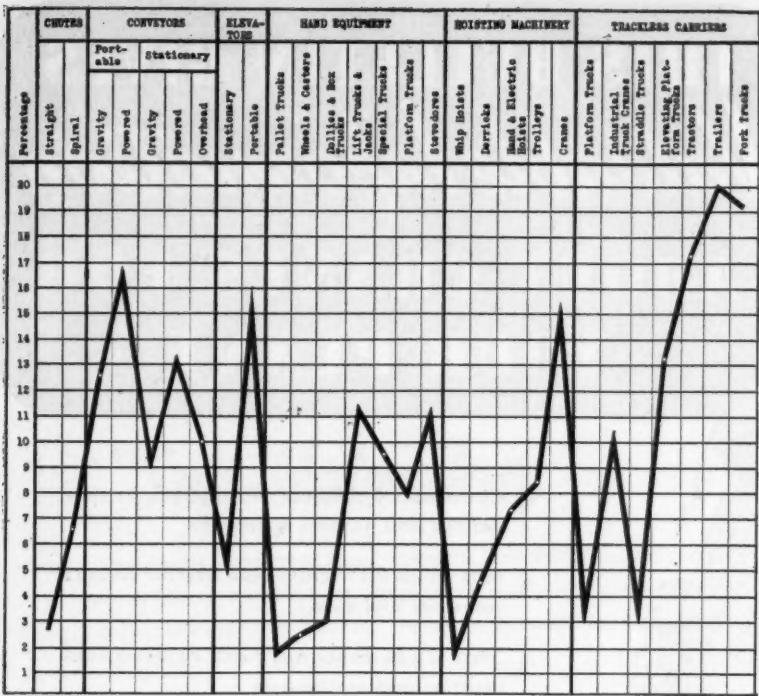
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STATISTICAL DATA compiled from 300 consecutive issues of *D and W* over the past 25 years prove conclusively the thoroughness and consistency of *D and W*'s editorial coverage of materials handling equipment. These figures do not represent materials handling articles only, but indicate the percentage of issues in which the various types of equipment were illustrated in connection with any phase of shipping, handling, warehousing or distribution.

25 Years' Sponsorship Of Materials Handling

For the past quarter century *D and W* has been publishing practical and dependable information on materials handling in all of its varied aspects. Today, materials handling is vital to the war effort. Tomorrow, it will be indispensable in a new way if post-war distribution is to be more efficient and economical.

FOR a quarter of a century *D and W* has been advocating mechanical handling rather than manual handling of materials. In Feb., 1919, an article was published dealing with the heavy overhead expense attached to handling operations under the title "Handling Costs Should Be Derived By Scientific Calculation." While, of course, this establishes the fact that *D and W* recognized the importance of materials handling 25 years ago, the issue you are now reading demonstrates that our sponsorship of better materials handling methods is more active today than ever. There is greater need for it.

If post-war distribution is to be more efficient and economical, the handling of raw materials and finished products in bulk, in packages and in palletized units, for and dur-

ing production, transportation and storage will have to be standardized more extensively than has ever been done in the past.

Handling Costs

Moreover, it has been demonstrated repeatedly that handling costs are a vital factor in determining profits. As a matter of fact, handling in distribution, adds nothing but cost to a product. Post-war taxes, competition and innovations will be difficult to control and are likely to cut deeply into net earnings. With larger volume, handling costs, in all probability, will increase also. But handling costs can be controlled by the planned application of sound practices and the proper use of mechanical equipment. The war has made more people in

more places more materials handling conscious than ever before in history. All branches of the armed forces have trained thousands of men and women in modern methods of materials handling, not in this country only but in all parts of the world. Industry, on the whole, in its vast achievements in the production and shipment of war goods, has adopted the most advanced handling practices and has developed some new and amazing techniques. *D and W* has been receiving subscriptions recently from men in industrial plants with such titles as plant traffic manager, internal traffic manager, motor handling manager, etc. "A Modern Manual of Materials Handling Equipment" by Matthew W. Potts, *D and W*'s materials handling editor, that has been running serially in *D and W* during the past year, has been adopted by the United States Navy and included as a section in its "Materials Handling Handbook."

These facts indicate, not only a widespread and growing interest in the subject, but a definite need for practical and dependable information on materials handling in all of its varied aspects. To give that information clearly, simply and graphically is one of *D and W*'s major functions. We have been doing it for 25 years.

The Accompanying Graphs

The accompanying graphs indicate something of the scope and diversity of *D and W*'s interest in materials handling during the past quarter century. It will be noted that, under the heading of trackless carriers, straddle trucks and platform trucks have a low percentage. The reason is that platform trucks are now used chiefly in heavy industrial manufacturing and that straddle trucks have graduated only recently from what may be termed a purely lumber-carrying category.

An analysis of the graphs shows however, that during the entire 25-year period covered, *D and W* has neglected nothing in the way of materials handling equipment, but has given the amount of space to each type which, to the best of our knowledge and belief, was appropriate at the time and in keeping with the development of the equipment and its various uses.

Under the hand equipment classification, pallet trucks are a recent development which explains their position on the graph.

First Fork Trucks

Incidentally, it is interesting to observe in passing that the first mention of fork trucks appeared in *D and W* in Sept., 1923, which was about when they were first introduced. The first mention of pallet trucks appeared in May, 1935, the year presumably that they were put on the market.

Singular Parallels

To further record and emphasize the facts concerning *D and W*'s coverage of materials handling during the past 25 years, and also because of their particular pertinency at this time, it may be of interest to cite a few singular parallels among some of the articles published 25 years ago

(Continued on Page 56)

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New Navy Handbook On Materials Handling

NAVY HANDBOOK, MATERIALS HANDLING. Issued by Bureau of Supplies and Accounts, U. S. Navy, Field Operations Branch, Containers and Materials Handling Section, Navsanda Publication No. 13, Navy Department, Washington, D. C.

The Bureau of Supplies and Accounts, U. S. Navy, Field Operations Branch, Containers and Materials Handling Section, has just issued its new Navy Handbook, Navsanda Publication No. 13, on materials handling and storing methods. As a publication, it probably is unique of its kind.

The book is in loose leaf form, consisting of seven sections: 1. Illustrated Nomenclature. 2. Equipment. 3. Maintenance. 4. Safety. 5. Storage Methods. 6. Unit Load Patterns and Carloading. 7. Operating Practices.

Editor's Note: It is interesting and pertinent to note that the 54 pages comprising Section 1 of the Handbook, namely, "Illustrated Nomenclature," are enlarged reproductions of the illustrations, definitions, descriptions and applications in Matthew W. Potts' "Modern Manual of Materials Handling Equipment" which D and W. has been publishing serially since last July. If Mr. Potts' "Manual" were in need of special endorsement it would be difficult to conceive of any better compliment than this.

Each section is clearly illustrated and is based on practical experience as well as technical knowledge. Each section gives a detailed account of equipment and methods and is well illustrated. It is the intent of the Bureau of Supplies and Accounts to continue adding material to its Handbook, so as to keep it up to date and to supply holders of the publication with current data.

Further information regarding this publication may be obtained by addressing the Bureau of Supplies and Accounts, Navy Dept., Washington, D. C.

Flight and Drag Conveyor

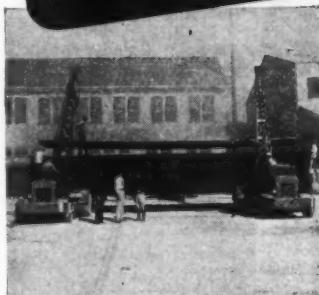
(Continued from page 44)

supported above. In this way, discharge points can be located as desired with gates in the trough to discharge into hoppers, bins, etc., the material discharging through the opening. At the end of the conveyor the trough is stopped and all material will discharge automatically. These conveyors can be built in considerable length, and operate either on a horizontal or an inclined plane, but are not generally used for vertical movement.

Application—These conveyors can be used for a wide variety of materials such as butts in sawmills, sand, gravel, stone, coal, rock products, sawdust, chemicals, and many other bulk materials.



Free-Roving Tractor-Footed
ROUSTABOUT
CRANE



• Twin Roustabout Cranes unload extra-long strip steel.

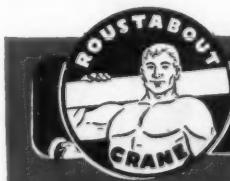


• Roustabout Crane hustles gasoline drums at an airport.

**Speedy Load-
Handling**
**where you want it
when you want it**

Its speedy on-the-spot load-hustling makes the Roustabout Crane invaluable to the hundreds of airports, factories, railroads, docks and warehouses that now have one or more. On wheels or crawler tracks, it goes anywhere, loads, unloads, stacks anything to five tons, prevents costly delays. Easy to operate, all tractor power, ball-bearing boom turntable, gears in oil, full boom swing—built for years of overwork. It fills the gap in your post-war materials handling plans. Write today for the cost-saving facts.

THE HUGHES-KEENAN COMPANY
611 NEWMAN STREET • MANSFIELD, OHIO



Roustabout Cranes

By Hughes-Keenan

Load-Hauling Specialists Since 1904

(Continued from page 54)
and some that have appeared during the past six months. For example:

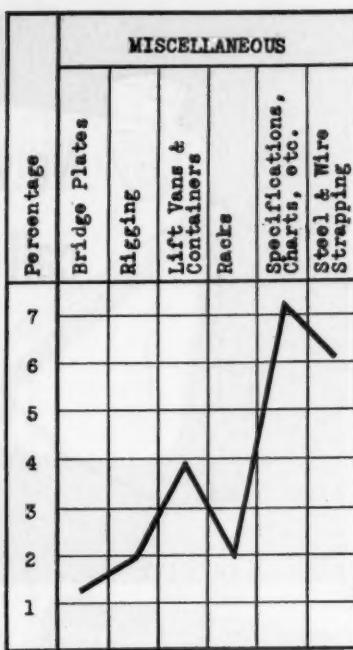
In Feb., 1919, a short article with one illustration appeared showing that "buildings in downtown New York were constructed with no respect to the receiving and delivery of general merchandise." The illustration showed a horse-drawn truck backed up across the sidewalk, being unloaded at a narrow wooden loading dock by teamsters with bale hooks.

The contemporary parallel, published last month, June, 1944, as part one of a two-part article on the Order and Stores Building operated by the General Electric Co., Schenectady, N. Y., showed features of a building constructed around a carefully planned handling and storage system instead of having the building erected first and then trying to fit a system into it. It contained 12 illustrations, including pictures of a receiving bay with sunken tracks and truck pits for facilitating loading and unloading operations.

In Feb., 1919, a short article with one illustration appeared showing freight being unloaded by hand from freight cars into a scow at a dock in New York harbor.

In April, 1944, a two-and-a-half-page article appeared with 8 illustrations showing how the Navy, by using more and more modern mechanized equipment, including palletized unit loads, and, by pioneering to meet new and undreamed of demands, has maintained a steady flow of supplies to far-flung bases.

In April, 1919, a short article with one illustration appeared showing



IN ADDITION TO EQUIPMENT, D and W
during the past quarter century, has published much on miscellaneous subjects related to materials handling, as indicated in this chart showing the percentage of issues in which the various subjects shown were illustrated or described in connection with articles on any phase of shipping, handling, warehousing or distribution.

electric industrial trucks and four-wheel trailers in use at a Quartermaster's Depot in Brooklyn, N. Y., during World War I. The truck drivers were men.

In Jan., 1944, an illustrated article entitled "How Women and Machines Help Solve QM Handling Problems" showed how the Quartermaster Corps of World War II has met and solved many of its handling problems by more intensive use of mechanical equipment and more extensive use of women to do men's jobs.

In March, 1919, an illustrated article on "How to Reduce Merchandise Handling Costs" featured the use of a spiral chute and a roller conveyor system which was stated to have effected economies of 20 to 50 per cent in the cost of handling outgoing freight.

In Feb., 1944, an illustrated article reported that the use of an assembly line conveyor system had saved \$12,150 for a QM Depot in New Jersey.

In March, 1919, a short article with one illustration featured a machine for strapping wire around boxes as a means of reconditioning them "so they would hold together until they could reach their destination."

In Feb., 1944, an illustrated article on steel strapping emphasized that "the increasing use of steel strapping for protecting shipments is one of the outstanding developments of the war," and that "packing and reinforcing war materials have taught shippers many lessons likely to be reflected in post-war practices."

In Nov., 1919, an illustrated article
(Continued on page 72)

SPEEDIER materials handling on pneumatic tires

Modern pneumatic tires on HYSTER Fork Lift Trucks make for faster, smoother performance.

In unpaved storage yards HYSTERS work successfully where solid tire machines can't operate.

Floor upkeep in factories and warehouses is cut to almost nothing where pneumatic tire HYSTERS are used.

Faster, smoother handling means cheaper handling.



A HYSTER 75 unstacking plywood in a freight terminal warehouse. It is transported by the machine direct to shipside.

HYSTER Lift Trucks are made in sizes from 2000 lb. to 15,000 lb. capacities.

HYSTER COMPANY

2940 NE Clackamas, Portland 8, Oregon
1840 North Adams, Peoria 1, Illinois



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2724 First Ave. So., SEATTLE, 4; 233 Ninth Street, SAN FRANCISCO, 3; 2700 Santa Fe Ave., LOS ANGELES, 11; 221 North LaSalle St., CHICAGO 1; 90 West St., NEW YORK, 6; 1022 Denrite Bldg., WASHINGTON, 5, D. C.; Masonic Bldg., NEW ORLEANS, 12.

Don't assume you can't get equipment—Inquire.

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Top Photo: Miscellaneous brass goods handled with a smooth-rolling long span hand-propelled crane.

Right Photo: Large piles of lumber are easily moved by one man with this overhead system.

Left Photo: This inexpensive crane makes the handling of long unwieldy boxes a simple matter.



WAREHOUSE MATERIALS

Easily Handled

Lifting, tugging, luggering of heavy or cumbersome warehouse materials not only is hard on the workers, but requires more help and time, and is a major factor affecting profits.

Cleveland Tramrail equipment of various types has been developed for nearly every warehouse requirement. This equipment makes it easy for one man to handle heavy boxes or awkward shapes and usually pays for itself in a short time.

CLEVELAND TRAMRAIL DIVISION
THE CLEVELAND CRANE & ENGINEERING CO.
EAST 283RD ST.
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BOOKLET No. 2008. Packed with valuable information. Profusely illustrated. Write for free copy.

CLEVELAND TRAMRAIL



OVERHEAD MATERIALS HANDLING EQUIPMENT

Save Another Worker With The GLOBE 'One-Man' BARREL TRUCK



With this new GLOBE BARREL TRUCK, *one man* can easily and quickly LOAD, WHEEL and UNLOAD practically any size barrel, tierce or drum. No need for any helper. Give the helper another barrel truck and let them do twice the work.

It's the easiest operating barrel truck on the market, and the operator doesn't even have to touch the barrel! To load—place the truck against the barrel, drop the chime hook and, placing your foot on the bar, pull down on the handle. And off you go. Unloading is just as easy.

Rolls easily because the load is perfectly balanced over the wheel. Parks barrels *flush* against one another to save valuable storage space. When set down on scale, barrel can be marked on either end. Trucks stand upright when not in use so they can be nested in a small space.

Here, indeed, is the time and labor saving method of handling barrels. And here, too, is the method that wins instant approval with the man on the floor. Order one today and be convinced. Or, if you prefer, write for circular and prices.



THE GLOBE COMPANY

4000 PRINCETON AVENUE CHICAGO, ILLINOIS

29 years of serving the meat packing industry with expertly designed equipment

Where Do We Go From Here?

(Continued from page 33)

ling equipment in order to handle new types of packed merchandise.

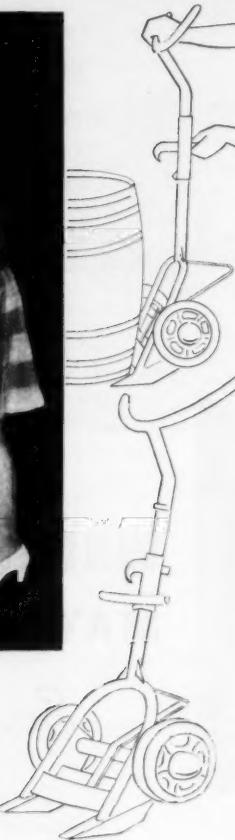
Air cargo has opened a new field for loading and unloading equipment. The new assembly lines to meet the need of our domestic appliances, automobiles, and other products, will require ingenuity in the laying out of conveyors and processing equipment which will involve materials handling principles.

Now Is the Time to Plan

There is need for coordination in the standardization of motor truck platforms in heights and widths. State legislatures may have to be petitioned to change the overall width of loads so as to permit greater widths than 8 ft. on intra-state and inter-state shipments.

Work is already being done by the armed forces to get better rates on the shipping of empty pallets and other containers. Work will have to be done to get better rates on the shipping of loaded pallets.

All of these things call for coordinated effort on the part of materials handling equipment manufacturers, and will require the best engineering, educational and advertising programs possible. When the industry decides what it is ready to do, it can answer the question: *Where do we go from here?*



Electric Truck Statistics

The Industrial Truck Statistical Assn., Chicago, Ill., which represents the electric industrial truck industry, issues periodically facts and figures on the monthly volume of business in that industry.

In its release of April 18, 1944, it is interesting to note that the domestic bookings of electric-industrial trucks and tractors during January, 1944, totaled 122 units. Breaking down these units as to types, the tabulation is as follows:

Four platform trucks with capacities ranging from 4000 lb. to 6000 lb. 105 cantilever trucks with capacities ranging from 2000 lb. to 20,000 lb. 2 light duty tractors. 11 crane trucks with capacities ranging from 3000 lb. at 7 ft. to 10,000 lb. at 5 1/2 ft.

The net value of the chassis booked during January was \$510,492.50 as compared with \$977,577.43 in December. However, this does not indicate, necessarily, that there is a falling off in the amount of business being placed for electric industrial trucks, because February figures may show a larger volume. (M. W. P.)

25th Anniversary

Towmotor Corp., Cleveland, O., is celebrating 25 years of service in the materials handling field. The firm was founded in 1919 by F. W. Sears and his son, Lester M. Sears.

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D and W, July, 1944—59

AIR CARGO EQUIPMENT . . .

(Part 2) In

SHIPPERS are going to be interested not only in the characteristics of speed, size of plane, type of service, weight control and power plant of post-war air cargo planes, as discussed in the first installment of this article, but more particularly in what interior arrangements will be available for carrying and caring for their shipments.

Airlines are agreed that if possible, the center of gravity or center of volume of the cargo compartment should

the wing section adjacent to the fuselage for the storage of cargo. To be useful for cargo the wing section should be accessible from the main cargo compartment. Since structural strength is obtained in the fuselage center section it is considered doubtful whether an accessible wing compartment will be attempted.

Access to, and the handling of cargo in compartments of this type are deemed of prime consideration. If readily accessible with cargo move-

CONESTOGA: New stainless steel all-cargo plane designed for the Navy was named after the covered wagon of colonial days. The plane is also called the "flying catfish," and can be used efficiently on unimproved fields and short runways. The ship designed by the Edward G. Budd Mfg. Co., has a cruising speed of 165 m.p.h., and can carry 10,400 lb. of cargo.

Press Assn.



coincide with the center of gravity of the airplane. By placing approximately one-third of the cargo compartment forward of 25 per cent of the mean aerodynamic chord, the center of volume is approximately correct for most present day equipment.

In the passenger type plane, cargo and baggage have been placed where they have had a relatively large effect on the movement of the center of gravity. In the strictly cargo airplane the design probably will allocate space so as to provide correct loading when the load is evenly distributed throughout the available space. From the standpoint of practical handling of loads, with the objective of providing simple balance distribution, this is not desirable.

The combination cargo and passenger plane may offer more variables as to the location of the cargo compartment. Designs emphasizing passenger service may place passengers near the center of gravity whereas designs favoring cargo may reverse this arrangement. In any event that design which is most adapted to the route it is serving is the one which will be selected.

For immediate post-war use, the airlines are in close agreement that they cannot hope to utilize a part of

HEAVY CARRIER: The upward sweep of the afterbody permits high clearance beneath the fuselage. The tricycle landing gear keeps the plane in flight position, and eliminates many storage problems. It will carry an ambulance and amphibious "duck" as shown here, and still leave a large space for stowage of other cargo.

Press Assn.



2) Interior Arrangements . . .

By JOHN H. FREDERICK

Air Cargo Editor

and JERRY W. MARTIN

Research Assistant, School of Business Administration, University of Kansas

• • •

Airlines have found that it is not necessary to run much over 8 lb. per cu. ft. as cargo space becomes filled before reaching maximum weight capacity. This reasoning by airline executives apparently is based on past experience. Future operations may permit consideration of a higher density factor than the eight pound figure; but, in general, it probably will be better to be limited by weight rather than cubic space.

One opinion was that the circular cross-section fuselage for cargo planes can be done away with. Another was that the cargo plane probably will end up with a shorter, wider, but not as high a cargo compartment as found in a railroad box car because of structural, cargo handling and center of gravity limitations. Others agreed that post-war cargo planes can be expected to have the circular section monocoque fuselage with tapering from center of gravity to tail slightly, nearly 40 ft. in length, 8 ft. in width, and as near 7 ft. high as possible. The objective will be to provide sufficient cubic loading space to carry maximum payloads at short ranges with a uniform load having a density of 9 to 10 lb. per cu. ft.

Landing Gear

All airlines are in complete agreement with the tricycle landing gear

will be used on practically all cargo airplanes.

The features of level floor, better ground stability, increased acceleration, and improved loading characteristics, are considered as making the adoption of the tricycle gear almost a certainty.

High vs. Low Wing

The high-wing design is believed the most logical for cargo transport ships. Every effort should be made to make possible loading and unloading from present commercial type trucks. The gains made possible by eliminating the necessity of special ground equipment will also result in reducing the number of times that the cargo will have to be handled. A reduction of ground time and ground personnel alone will be well worth the incorporation of the high-wing in aircraft design, and as the high-wing design will also reduce the capital investment in ground equipment, below that required by low-wing designs, it is anticipated that cargo planes will have the high-wing design.

Although the high-wing design is almost essential for domestic cargo planes, long-range over-ocean transportation may not include this feature as speed of loading and unloading is not so important on over-seas operations as it is on short-range domestic

EDITOR'S NOTE: This is the concluding installment of a two-part article on air cargo equipment and what the airlines expect to use. The information presented is based on research conducted by the authors, plus personal interviews and correspondence with airline officials, airplane manufacturers and others.

Emphasis has been placed on what the airlines want because the authors believe that manufacturers will provide what their customers need.

Consequently, this article is a composite of opinions, and is intended to give shippers an idea of the type of equipment likely to be available for use shortly after the war.

The first installment was published in the June issue.

• • •

flights. For combination cargo and passenger service the advantage of safety provided by the low-wing planes may overcome the advantages of the high-wing design.

A report made in Jan. 1943, covering labor costs of eight airlines for loading and unloading with present equipment under winter conditions showed an average cost of \$2.40 per ton. Designs which make possible a reduction in costs of loading and unloading cargo will be most favorably received by the airlines.

Doors

The prevailing opinion is that cargo planes must have more than one door and at least one of the doors must be large enough to accommodate bulky cargo. Opinion of airlines as to the exact size and placements of the doors vary considerably. Openings 6 x 8 ft. are considered desirable by most operators, but one airline believes that doors 4 1/2 x 6 ft. will be sufficiently large for a number of years. Another believes that the door should permit the loading of an article which will occupy the maximum space available in the plane. Another advocated one door 6 x 8 ft. with three other doors of smaller dimensions.

If sliding doors can be provided, which will carry stress loading across door openings and still provide the same surface fairing as hinged doors, they will be preferred to hinged doors. Some operators want two large doors with one at each end of the cargo compartment and on opposite sides, so that one crew may load on one side at the same time that another crew is unloading on the other side. Others consider it immaterial whether the doors are on opposite sides as long as they can be loaded or unloaded simultaneously, but insist upon having doors at each end of the cargo compartment.

The operator who wants one door 6 x 8 ft. and three others of smaller

SPECIAL FEATURES: In addition to cargo that can be moved mechanically into the ship, there is provided a specially designed hoist fitted above the loading ramp and a manually operated winch mounted on the forward end of the cargo compartment. Here, the "duck" is being driven up the ramp into the plane.

Press Assn.



dimensions does not anticipate it will be practicable to accomplish simultaneous loading and unloading. He believes the problem will be handling at intermediate stops which will call for unloading of the cargo destined for a particular station and the taking on of cargo for all the stations ahead. His suggestion is to have the smaller doors near the cargo destined for a particular station so as to require as little movement for unloading as possible. By providing more doors there will be less distance for cargo to travel and occasional bulky items can be routed through the large door if occasion demands.

Nose and Tail Loading

There are also those who advocate a door in the nose and another in the tail for straight-line movement in loading and unloading, but in view of what some manufacturers seem to be thinking about the value of this design it was surprising that so few airline people even mentioned it as a possibility.

The long-range over-ocean airplane may present a somewhat different problem inasmuch as it will probably load up at one station with a full load destined for one other station. In this case separation of cargo is of less importance.

In the last analysis maximum ease of storage and placement of cargo where it will not be disturbed by later cargo movement, destined for other points, will be the factor influencing the number and placement of doors on cargo planes.

Lighting

It is expected that all occupied and used portions of the airplane, including the loading and unloading exterior areas, must be adequately lighted so as to facilitate cargo handling and the performance of operational duties. Lighting is essential for safety since much of the loading and unloading probably will be done at

night. Shipping papers are difficult to read without proper lighting and if ground time is to be kept to a minimum it is necessary that complete lighting be provided in all compartments of the plane.

Heating and Refrigeration

Heating and ventilation should be provided on cargo airplanes in order to protect perishable cargo. Refrigeration, however, is deemed too expensive by most airlines except for very special operations, since flying at certain altitudes on long flights will probably accomplish the same thing. Pre-cooling and package insulation were suggested as a means of offsetting the need for refrigeration for many commodities, but several operators believe that refrigeration service can be offered by equipping one or more compartments in the larger planes.

Others are of the opinion that, if the demand warrants, they will provide completely refrigerated planes at a premium rate and one operator believes that he will be willing to offer

refrigeration at no additional cost if otherwise unobtainable business can be received.

Handling Cargo in Flight

Provision for a flight cargo handler station is expected by most airlines although a few believe that no effort should be made in that direction in the near future. The possibilities of handling mail in flight are thought to be worthy of consideration but not as likely as flight cargo handling.

Increased crew costs and decreased payload were advanced as reasons why the establishment of cargo and mail handlers should be avoided. Ground stations are considered as adequate by those not wanting the additional expense.

However, many airlines believe a flight cargo handler desirable and even necessary on many types of operation. Short-haul local cargo operations were mentioned as a suitable type of service for flight handling of cargo.

The desirability of having a flight cargo handler on board seems dependent upon the particular type of operation. Assuming no necessity for watching the cargo to prevent damage and assuming the cargo handler will only be necessary for the purpose of keeping records and making adjustments of load enroute, there should not be a requirement for such a person on board a plane carrying through cargo.

On the other hand, if ground time is to be kept to a minimum, sorting of cargo enroute will be advisable if very many intermediate points are to be served. This will be particularly true if a large amount of miscellaneous cargo with varying destinations is picked up enroute.

Floor Strength

In answering a specific question as to the advisability of providing structural reinforcements in floors for weights as high as 50 lb. per volume cu. ft. with tight, changeable floor topping of durable character several airlines quoted from the tentative agreement of the Air Transport Assn. Committee on Future Aircraft Requirements as follows:

"The floor supporting structure subjected to cargo loading shall be capable of withstanding uniformly distributed loading of 150 lb. per sq. ft. The flooring itself shall be capable of withstanding loading of 125 lb. per sq. ft. uniformly distributed. The floor shall be designed with due consideration to abrasion, to crushing resistance and withstanding concentrated loads of 500 lb. applied to any one sq. in. of floor. The flooring and walls in the fixed and convertible cargo section shall contain no protuberance to interfere with the handling of cargo or cause damage to cargo therein."

Bin Arrangements

Cargo planes should be designed to permit installing of various types and sizes of bin arrangements as required by operations. Currently used cargo tie-down facilities are extremely inadequate, and this feature of cargo operation is of tremendous concern to most airlines. If full advantage of interior cargo space is to be taken, considerable study must be given to the provision of tie-down facilities.

Bins and shelves will probably be
(Continued on page 104)

WIDE DOORS: A jeep moving up the ramp preliminary to entering the unusually wide doors of the 25-ton Curtiss Commando (C-46) military transport—the world's largest twin-engined airliner.

Courtesy Curtiss-Wright Corp.



INTERIOR ARRANGEMENTS of cargo type plane now used by United States Army Air Transport Service. Note tie-down arrangements at sides.

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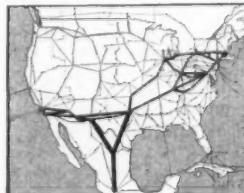
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Improved Air Service Seen Likely As U. S. Returns Planes to Airlines

Improved operations by all major airlines seem likely soon. The Government is returning planes requisitioned after Pearl Harbor to many of the operating companies.

Six major air lines operating out of Chicago will be able to increase schedules by approximately 22 flights and operating revenues from 12 to 35 per cent as the result of the return of 12 airplanes in April and May which had been leased or sold to the government after Pearl Harbor, a survey made recently by the Chicago *Journal of Commerce* disclosed.

Some of the salient facts reported by the *Journal of Commerce* as a result of its survey with respect to six major airlines are presented here-with in condensed form follows:

American: Eleven out of 43 planes originally given to the government have been returned. In the last shipment the three given back resulted in an increase of seven schedules as of May 1. Originally, schedules were cut about 40 per cent by the withdrawal of the eleven planes. The company now expects to receive two or three planes a month until the end of 1944.

Braniff: The government took over nine planes, leaving seven ships which were able to operate at 84 per cent of prewar schedules, despite the 54 per cent decline in the size of the fleet. One plane was returned in May, which should increase schedules from 12½ to 15 per cent, or to almost 100 per cent of the prewar figure.

Northwest: Of the 14 planes originally taken over by the government, 10 have been returned, including two in the recent shipment. Increased schedules should up passenger revenues by 35 per cent and mail and express revenues by 25 per cent, it was estimated.

TWA: Twenty planes have been requisitioned by the government, and five have been returned, including two in the most recent shipment which will be put into service shortly.

United: The government took over 37 planes after Pearl Harbor, of which six were returned last Fall and three in May which will be put into operation during July.

Rail-Air Express Up 19% in 1st Quarter

Combination rail-air express shipments handled for the nation's commercial airlines in the first three months of this year increased 19.6

Air Shipment of Perishables Being Tested at Detroit

A long-range program of experimentation in the shipment of perishable food products by air has been prepared by United Air Lines, the Great Atlantic & Pacific Tea Co. and Wayne University.

The survey will commence with field tests of aerial shipment of a wide range of perishable foods from growing areas to a panel of produce experts at Detroit, and all phases of marketing will be studied in relation to the conditions arising from air transportation.

The studies are expected to extend over a period of at least a year. There will be check tests of similar products shipped by conventional methods for purposes of comparison.

per cent over the first quarter of 1943, the air express division of Railway Express Agency reported today. A total of 110,342 shipments were moved in the combined service in the three-month period, compared with 92,223 shipments last year.

Technical Advances Viewed as Hastening Arctic Air Routes for People and Cargo

As a result of wartime technical advances in the aviation industry the world will see a vast expansion in air travel at the end of the war, with new routes across the Arctic linking many of the large cities of the earth, it was predicted at the three-day national aeronautics meeting of the Society of Automotive Engineers recently in New York.

George A. Bleyle of the Wright Aeronautical Corp. told the conference that "planes are being readied" to fly across Arctic routes between the world's great cities. He added that these routes could be flown safely now with new devices tested to operate at 20 degrees below zero. Ultimately, he said, planes would fly safely in 60 degrees below zero, with engines, starters, fuels and batteries of Arctic types.

To illustrate the vast saving in time and distance of trans-Arctic routes, Mr. Bleyle said that a plane would have to fly only 7,700 miles from New York to Chungking, via the North Pole, compared with 11,700 surface miles via San Francisco and

Air Traffic Conference At Denver July 17-18

For the second consecutive year, Denver will be the scene of the annual Air Traffic Conference of America with the nation's leading airline traffic executives convening in the Colorado capitol July 17-18 to discuss war-time problems, Paul J. Carmichael, general traffic and cargo manager of Continental Air Lines, has announced. Braniff, Inland, United and Continental Air Lines will act as joint hosts to the conference this year, Mr. Carmichael said.

The conference, a division of the Air Transport Assn., is the "working body" of all airlines, Mr. Carmichael explained. It is concerned with the solving of common problems embracing air traffics, schedules and related subjects.

Navy Revamps Planes For Air Cargo Work

The Consolidated-Vultee PB-26-3 four-engined Coronado, once hailed as the most powerful long-range bomber of the Navy, is being prepared for new cargo-carrying assignments on the battle fronts of the world at a new seaplane base recently commissioned at Chula Vista, Cal., it was officially disclosed late in March.

The report revealed that scores of 33-ton ships have already been recalled from combat zones for conversion into air freighters by the Rohr Aircraft Co.

At the Chula Vista seaplane base the interiors of the planes are cleared of all obstructions that might interfere with cargo stacking. Surface control cables are rerouted, gun turrets and supercharger removed, crews

(Continued on page 99)

Honolulu. The Arctic route between New York and Moscow is only 4,700 miles, against 5,800 miles via Cherbough and Berlin, he pointed out.

Personnel must be specially trained for the Arctic routes, while sleeping bags will be as essential as parachutes, Mr. Bleyle added, predicting that the diet of Arctic travelers would include chocolate for energy, muskox, caribou and seal for fat, and rabbit, ptarmigan and fish for variety.

J. E. Gulick of the B. F. Goodrich Company said many hazards caused by the formation of ice on planes flying the Atlantic had been overcome by the development of pneumatic de-icers for the wings of a plane, while slinger rings and feed shoes that supply alcohol to melt ice from the propeller, had also been effective. However, the aviation industry has not yet produced "a complete cure-all" for the aircraft icing problem, he warned.

Lewis A. Redert of the Ames Aeronautical Laboratory said the public held many false concepts about air-

(Continued on page 99)

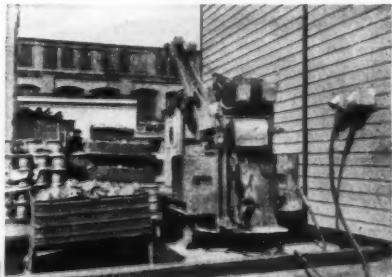
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G-E Copper Oxide Rectifiers provide low-cost, efficient and *fully automatic* battery charging of electric trucks for one of the world's largest valve manufacturers. (Name and installation data on request.) The large picture shows the clean, compact, easy-to-operate installation of G-E rectifiers. The small picture shows a crane truck along side the charging house, getting a "noon-hour" boost. All the operator has to do is connect the cable to the truck battery and the rectifier does everything else. No experts are needed. And maintenance, compared with other types of battery-charging equipment, is virtually eliminated. There are no moving parts on G-E rectifiers except the cooling fan. For full details write: Section A747-111, Appliance and Merchandise Dept., Bridgeport, Conn.

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U. S. Overseas Commercial Policies Held Hampered by Faulty Enforcement

A flood of orders from every corner of the globe is awaiting U. S. manufacturers, John Abbink, editor of various foreign language business publications, told the Chicago Assn. of Commerce at a recent luncheon. He criticised, however, the administration's overseas commercial policy, which, he declared, is subjecting American exporters to "a bewildering ride on the merry-go-round."

Voicing the possibility that responsible government officials and their subordinates are working at cross purposes, Mr. Abbink said statements at the policy making level are reassuring, but when attempts are made to carry them out, results achieved seem "completely at variance with the language used when the course was set."

"No sooner has a book of rules been promulgated by one set of functionaries," he continued, "than another group pops up with new restrictions and claims jurisdiction. It is not unusual to encounter a situation in which those who write regulations are completely unable to interpret them. The casual visitor to the nation's capital can scarcely dodge his way about without jostling a 'mission' en route to distant lands to handle the trade of the area."

"In a country of liberal traditions it is proper that representatives of every political conviction should be employed in the conduct of state affairs. But in activities as complex as those of international commerce we could well afford in my opinion, to insist that experience and proven dependability under trying conditions should be a prime qualification."

"Secretary Hull and State Department officials who have demonstrated their aptitude time and again in dealing with foreign trade policy, have had to intervene frequently of late when local or overseas representatives of other departments made statements or advocated measures in their official capacities that fairly shouted the inadequacy of those from whom they emanated." (Slawson)

Adequate Transport Held Post-War China Need

China's major post-war problem will be the construction of an adequate transportation system to assure efficient distribution of goods and movement of people, Dr. T. K. Chang, Chinese Consul at Los Angeles, stated in a talk on "Post-War China" given before a recent meeting of the Na-

• Upon an expansion of commerce among the nations to a volume never heretofore known hinges our own prosperity and the welfare of the entire world.

Eric A. Johnston
President
Chamber of Commerce of the U. S.

First Use of Term "Pan-Americanism"

The first American statesman to correctly evaluate the growing friendship and community of ideals and interests of the American republics and designate them by the term "Pan-Americanism" was James G. Blaine, Secretary of State of the United States during the administrations of James A. Garfield, Chester A. Arthur and Benjamin Harrison, according to *Veritas*, a magazine published in Buenos Aires, in a recent tribute to "the great inter-Americanist."

The magazine goes so far as to call Mr. Blaine the creator of the word "Pan-Americanism" and the originator of the concept for which it stands. Mr. Blaine, it says, used the word frequently in official documents prior to March 5, 1888, when it was employed by a newspaper for the first time in an article in the *Evening Star*, of New York.

tional Oil Equipment Mfrs. and Dealers Society of Los Angeles.

Dr. Chang declared that reconstruction plans are already in preparation which call for railway, highway, airway and waterway expansion on a scale never before attempted in China. The country's industrialization, when peace has come, he said, will be centered in the interior, keyed to the development of its agriculture and the expansion of its communications systems. (Herr)

Law Urged that 50% of American Trade Be Carried in American-Owned Ships

Enactment of post-war legislation requiring that 50 per cent of American trade be carried in American ships was advocated at Los Angeles recently by Vice Admiral J. W. Greenslade, Pacific Coast co-ordinator, Naval Logistics.

Addressing the Los Angeles Foreign Trade Assn., Admiral Greenslade stated that insistence on at least half the nation's sea-born traffic being moved in American bottoms would permit other countries to make their own arrangements for trade relationships in keeping with this policy.

"The many vessels we have built during the war, with their war-trained and war-seasoned personnel will provide our nation with a well-integrat-

U. S. Tariff Low On World List

The tariff rates established by Congress are among the world's lowest, a survey published last month by the American Tariff League stated. Of 19 countries studied, the United States was seventh from the bottom.

The United Kingdom, supposed by many to approach free trade as closely as possible, was ninth from the bottom, two places above the United States. Below us were Japan, Belgium, France, Canada, the Netherlands and Sweden.

The highest tariffs are maintained by Spain. Its rate is 465 as against 100 for the United States. Next highest is Turkey with 359.6, Germany 279 and Brazil 239.4.

A drop to 168 comes with Greece, followed by Hungary 160, Italy 150.5, Mexico 149, Egypt 130, Switzerland 128, United Kingdom 118.3 and Argentina 110. All figures are for 1937, the last full year before the World War for which figures were obtainable.

Off-Shore Imports Up 31,000,000 Tons

Despite U-boats and the closure of many normal trade routes, off-shore imports into the United States totaled 31,000,000 long tons in 1943, a tonnage greater than in peacetime 1938, it was announced last month.

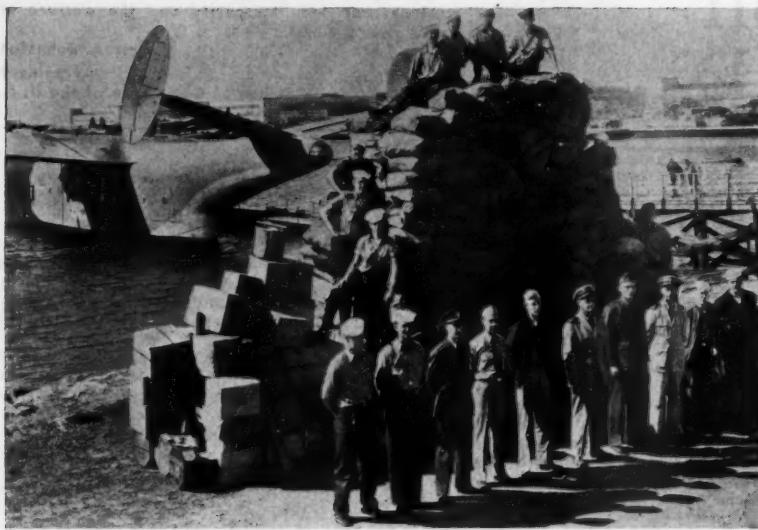
More than 95 per cent was made up of commodities on the shipping priority list of the War Production Board, the WPB reported. The small quantity of uncontrolled products entering—4.6 per cent of the total—was cited as evidence of the effectiveness of the cargo priority system.

ed Merchant Marine ready-made to proceed with post-war trade and commerce." Admiral Greenslade said. "But will these post-war fleets again be allowed to dwindle below the danger point in relation to national defense, with their survival depending on the sufferance of governmental subsidies? This is an unhealthy and negative approach to our problem of international competition."

On the other hand, the admiral pointed out, the 50 per cent requirement would limit shipping competition, and tend to bring foreign merchant marine operations up to our standards.

"A vigorous and effective national policy concerning post-war shipping

Record Mail Cargo



Courtesy Glenn L. Martin Co.

AIR MAIL: The world's greatest airmail load and the plane that carried it from Hawaii to Alameda, Cal. These sacks stacked up by the Martin Mars contain 25,000 lb. of airmail from the Pacific, that's 800,000 letters at an average of $\frac{1}{2}$ oz. per letter, and if they were all paid for at prevailing rates, they would carry \$160,000 in postage.

must be enunciated," Admiral Greenslade declared, "if we are to remain a strong maritime nation and reap the fair rewards of international trade."

Admiral Greenslade quoted figures backing his outline of the phenomenal expansion of the American Merchant Marine since 1936. He reported the

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CAPACITIES
1000 LBS. TO 1500 LBS.

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"TAKES PLACE OF EXTRA MAN"
"HAS MORE THAN PAID FOR ITSELF"
"DAMAGE CLAIMS PRACTICALLY NIL"

ONE MAN now does the work of THREE ♦♦♦

- "We can recommend this Loader to anyone, as they certainly are a labor saver. We are ordering another." — The R. J. Brown Co., St. Louis, Mo.
- "The Lift Gate has definitely taken the place of an extra man." — Continental Oil Co., Louisville, Ky.
- "Our merchandise damage claims have been practically nil." — M. F. Rockey, Moving, Storage, Packing & Shipping, New Cumberland, Pa.
- "Best possible testimonial—ordering two more next week." — Springfield, Ill.
- "This equipment has more than paid for itself." — Bakelite Corporation, Bloomfield, N. Y.

A PARTIAL LIST OF OTHER USERS
Socony Vacuum, Coca Cola, Standard Oil, E. I. Du Pont de Nemours, and a list of other users, like the Union Pacific Railroad, are enthusiastic operators of the Lift Gate Loader.



ANTHONY COMPANY, INC.
STREATOR, ILLINOIS

construction of 3052 ships totaling 31,000,000 tons between January, 1942, and April, 1944, and the shipment of 62,000,000 long tons of cargo from the United States in 1943. (Herr).

Westinghouse Enters Import Business

The Westinghouse Electric International Co., which for more than 25 years has operated in the international field as an exporter, has now entered the import field, according to an announcement by John W. White, president.

"We propose to use our world-wide organization as the basis for conducting a general import business," Mr. White said. "The company is well fitted to carry on this type of trade because of its long international experience."

"By this move, Westinghouse will do its part in furthering reciprocal trade among nations. Instead of the old 'one way street,' we propose to open a wide two-way highway for future foreign trade."

Mr. White also made public the appointment of Hampton C. Marsh as manager of the new department. Mr. Marsh, who has been with the Company's Sales Department for the past 15 years, said that the new department has already started import negotiations in some of the foreign countries which are free to participate in trade under war conditions. Later the company plans to offer representation in the United States for firms abroad.

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Boxes are built around the war equipment.

THE packing and shipping problems of manufacturers in this war are vastly different from those that confronted war material makers in World War I. Not only is it necessary that all war material reach its destinations safely, after long haulage to European points or South Pacific beaches, but the packing must be such that when received and stored at destination the contents of the boxes will not be damaged by the weather en route, or while in temporary storage abroad. Packaged machinery and small parts, carefully boxed against damage aboard ship, must often be stored without adequate protection against weather and infestation.

Importance of Packing

Naval officers have held frequent meetings with representatives of manufacturers of war materials, in an effort to impress upon them the necessity of improving the packaging and boxing of war materials for overseas shipment. In the Milwaukee area, for example, a series of seven such meetings have been held. At one, held in the Milwaukee Vocational School, Com. F. J. Nuber, district inspector of naval material, stated that men and women working day and night in war plants, producing naval equipment frequently worked in vain, because much of the material produced did not reach its destination in good condition, as it was improperly packed for overseas shipment.

"Hundreds of tons of war materials shipped overseas are being damaged or lost because of improper packaging," Com. Nuber said. "Such losses are bad from an economic standpoint and absolutely criminal from the military viewpoint, for they may well mean death to some of our men, or even annihilation for an advanced force."

Special Construction

As a result of these meetings, a Milwaukee construction firm undertook to package and box war materials for manufacturers who either did not have the facilities for such work at

Specialized boxing for export...

Milwaukee construction firm has developed a new and highly specialized business in packing and boxing machinery, vehicles and parts for export shipment. Wartime shipping and storage requirements demand special safeguards against weather, infestation and rough handling.

By JOHN E. HUBEL

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their own plants, or did not wish to enlarge their shipping departments to the extent of taking care of the care-



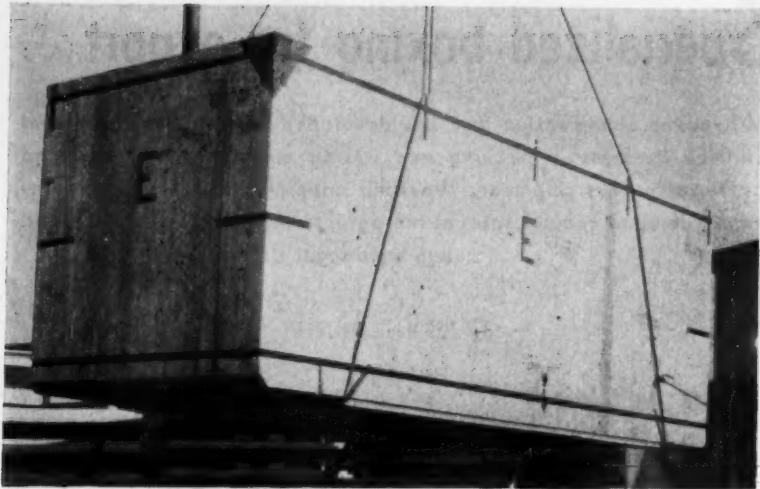
Carburetors, oil filters, distributors, etc., are wrapped in oiled paper.

ful work necessary for proper export packing.

This firm, the Thomas H. Bentley

Making the floors, sides and roofs of the large export boxes requires sound craftsmanship and skilled carpenters





Loading the finished product for rail shipment to ports of embarkation.

these boxes are built more substantially than some of the suburban garages one sees.

Roofing and Ventilation

The boxes are lined with a good quality of weatherproof paper. The tops of the boxes are made at the Bentley plant, have sheet roofing, the kind you see used on many garages. It is inserted between the outer and inner boarding.

Contrary to the custom of many exporters, the boxes are not made air tight. Instead, an inch or so of space is left for ventilation between the boards forming the roofs of these giant boxes.

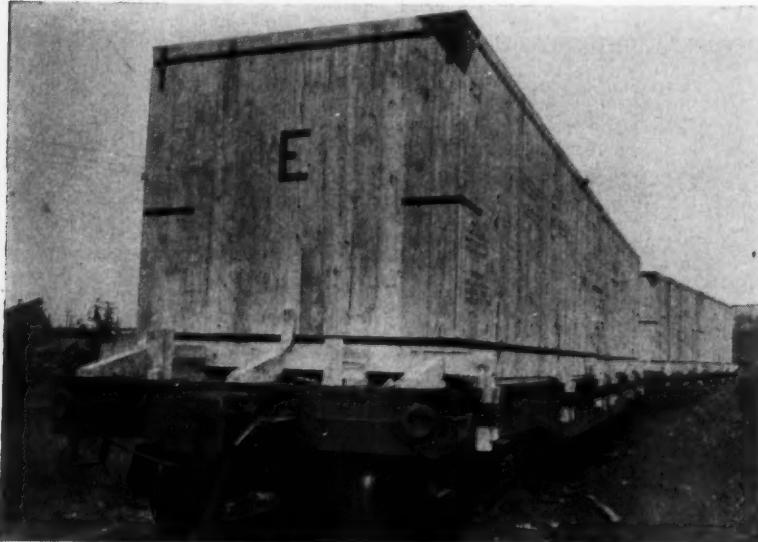
A story is told of a certain exporter of machinery, before this war, who got the idea of lining boxes, containing machinery for export, with zinc or sheet metal, practically her-

metically sealing the boxes. This exporter though he was doing his foreign customers a favor, in assuring delivery of the equipment against any kind of weather. But it was not long before he received cablegrams and letters asking him to desist from sealing his shipments, as sweating damaged the machinery worse than the weather ever had.

Insurance Against Sweating

At the Bentley plant the insurance against sweating is accomplished in another way. In the smaller boxes, containing spare parts and other small items, silica-jell is used. That is a chemical with which the shipping industry has accomplished what the tin-lined, sealed boxing expert tried to do in former years. A little of it in each of the smaller boxes, absorbs moisture.

Once the export boxes are placed on a flat car they never need any strengthening or repairs en route.



In the large export boxing, as shown in some of the accompanying illustrations, Bentley wraps the exposed parts of motors, such as carburetors, oil filters, distributors, etc., in oiled paper. Such wrapping is applied also to exhaust mufflers of all trucks boxed. This permits no moisture to get to the vital parts of engines.

The springs of motor trucks, exhaust pipes, and other unpainted parts sprayed with special rust-resisting compounds, known to the trade variously as AXS-673, 674, 934, 858, according to the kind of material to be protected against moisture.

Good Carpenter Work

Watching the making of the floors, sides and roofs of export boxes at the Bentley plant, one gains the impression that the same care is taken to assure good export boxing as a carpenter or cabinet maker would take in the construction of a new house. In fact, the building of substantial housing and the construction of large manufacturing plants and other buildings has been the business of the firm for many years.

Realizing that it is the care put into a building or into a box is what counts, the Bentley firm has never had any comebacks from either. Once its export boxes were placed on a railroad car they never need any strengthening or repairs en route. They are built to take it and still carry their loads.

Among the manufacturers of machinery, large and small, who use the Bentley plant are many who have shipping and packaging facilities of their own. But they have found it to their advantage, in this emergency, to deliver the products of their shops to the Bentley yards, to be boxed for export shipment because they know from experience that Bentley's stuff stands up both inside and outside.

British Plan Sales Zones in U. S.

Plans for selling British goods in American markets on a zone basis, modeled after American distribution methods have been completed by the Hambros Bank of London, according to a dispatch to the "Chicago Tribune" from its London bureau. Citing a pamphlet issued by the Hambros bank, the cable story says few British manufacturers have any conception of the vast size of the United States and its different regional demands and trading methods.

First of the centers to be opened will be one in Chicago, according to the bank's announcement, and the second will be at Dallas, Tex. From Chicago 30 million people will be reached, including those in the Detroit and Cleveland areas, while the Dallas area office would cover the New Orleans port district and other gulf points with a population of 16½ millions. Future offices will be opened at Boston, New York-Philadelphia, Atlanta, Minneapolis, St. Louis-Kansas City, Seattle and the San Francisco-Los Angeles area. (Slawson)

Shippers' Right to Route Rail Freight

While shippers have the right to route, this right is circumscribed by defined requirements. Correct routing requires experience, attention to details and close scrutiny of freight tariffs.

BY HENRY G. ELWELL
Traffic Consultant

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SHIPPERS at times inquire as to whether or not they actually have the right to route freight shipments tendered by them to railroads for transportation.

The answer can be given in the affirmative. However, the question covers a broad scope, and like all issues pertaining to transportation, it is dangerous to rely entirely on a general statement.

There are many decisions by the courts and by the Interstate Commerce Commission concerning this important subject of routing, and a review of citations will provide a basis for the study of a particular circumstance.

Interstate Commerce Act

Back of these decisions and citations is the Interstate Commerce Act. In section 15 of the Act, it is found that a shipper's choice of route must be observed. This section, in part, reads:

"In all cases where at the time of delivery of property to any railroad . . . for shipment . . . the person, firm, or corporation making such shipment . . . shall have the right to designate in writing by which of such through routes such property shall be transported to destination, and it shall thereupon be the duty of the initial carrier to route said property and issue a through bill of lading therefor as so directed"

Clearly, then, the Act does provide that a shipper has the right to route his freight shipments, but in exercising this privilege he must definitely observe the requirements. And, it is this very point which creates the necessity of dealing with each case on its own merits.

ICC Citations

Several citations have been selected and are here presented to indicate how far afield one may sometimes have to go to arrive at a conclusion in the matter of prerogatives of a shipper and duties of a carrier in relation to routing. Reference is shown with each citation as a guide for anyone who may wish to locate and pursue the decision in full. Only one reference is used with each citation, although there may be others of similar language in some instances.

"The existence of a competitive route ordinarily implies an option in the shipper. To give him the privilege of directing the routing is a corollary of the establishment of competitive rates. Congress expressly conferred this right upon shippers of railroad freight." (81 ICC 247)

"The shippers and not the carriers possess the right to designate the routing of traffic." (98 ICC 119)

"The law recognizes the right of the shipper to dictate the intermediate routing of his shipments over available through routes." (28 ICC 645)

"When a through route exists, the

shipper has the right to dictate the intermediate and terminal routing." (29 ICC 106)

"The shipper may control the route by which his merchandise may go, and the carrier must treat, in this respect, all members of the public alike." (7 ICC 43)

"If the carrier, contrary to positive instructions from the shipper, routes the car by an indirect and expensive line instead of the direct and cheaper route, such action is *prima facie* unjust and unreasonable." (20 ICC 520)

"It is well settled that if a shipper gives routing instructions the carrier must forward the shipment in accordance therewith even though a lower rate may be applicable over another available route." (21 ICC 290)

"A carrier's agent has no right to accept routing instructions by telephone from an unknown person." (14 ICC 606)

"Lack of knowledge of the applicable rate does not relieve the shipper from the responsibility of routing a shipment." (148 ICC 73)

"A shipper adopts the routing inserted in the bill of lading by a carrier's agent when such bill of lading is signed by a representative of the shipper. (113 ICC 309)

"The insertion of a rate in a bill of lading is equivalent to routing." (57 ICC 549)

"The insertion in the bill of lading of the amount of the charges prepaid and the weight of the shipment together discloses the rate, is equivalent to inserting the rate, and binds the carrier to transport the goods over the route taking the rate." (39 ICC 221)

Duty of Carrier

The foregoing sustains the assertion that the shipper has the right to route, but what of the duty of the carrier to comply with the shipper's instructions? Here, too, there are decisions and a few are mentioned in the following citations:

"No stipulation in the bill of lading can operate to exempt the carrier from the duty imposed by law to observe the shipper's routing." (27 ICC 493)

"When routing instructions are complete, and there is a connection between the initial carrier and the carrier named, it is misrouting to deliver to any intermediate carrier or carriers not named." (50 ICC 201)

"In the absence of specific routing instructions it is the carrier's duty to forward a shipment by the cheapest reasonable available route consistent with the instructions given." (142 ICC 521)

"Where a consignor routes by naming the connecting carrier, the initial carrier cannot be charged with misrouting if the shipment is forwarded by the route specified instead of by a cheaper route in which those carriers participate but with a third carrier intervening." (148 ICC 599)

"Ambiguity in routing instructions must be resolved in favor of the shipper's right, in the absence of specific routing instructions to the contrary, to have shipments moved over the cheapest reasonably available route." (77 ICC 242)

"Carriers are not presumed to know where consignees desire delivery, and in

the absence of notice, it is not misrouting to forward a shipment over any practical route taking the rate named by the shipper." (28 ICC 703)

Rate Insertion

Mention already has been made in regard to inserting a rate in a bill of lading by the shipper. Again there are applicable decisions among which the following are cited as examples:

"When there is a conflict between the routing instructions and the through rate as specified in the bill of lading, it is the duty of the initial carrier to forward the shipment by the cheapest route or to obtain further and definite directions from the consignor." (139 ICC 20)

"It is the recognized duty of an originating carrier to direct a shipper's attention to an inconsistency between the rate and route inserted in the bill of lading." (172 ICC 147)

"Even though it is the duty of the carrier's agent to secure definite instructions when there is conflict between the routing and rate shown, this does not apply when shipments are tendered for a line-haul movement, since an initial carrier is under no obligation to turn over to a competing line shipments delivered to it on bills of lading containing routing instructions and a rate applicable only over other lines to which the consignor might have given the shipment." (160 ICC 491)

No Cut and Dried Rule

This directs attention to the fact that no cut and dried rule applies. For this reason "one should look before one leaps" when attempting to use decisions in connection with a given proposition. The following two references uphold this thought although they appertain to the quotation of a rate or route by a carrier's agent:

"A misstatement, or misquotation, of the rate over a given route in one thing, misrouting is a different matter. It cannot be said that there is a misrouting in any proper sense, when the route given by the carrier is that requested by the shipper." (237 U.S. 94)

"A mistake by a carrier in responding to an inquiry by a shipper, either as to the rate or as to the route, will not excuse the shipper from paying the rate applicable over the route specified in the routing instructions." (146 ICC 749)

Routing of freight shipments via railroad is a serious matter and one which if not properly handled by a shipper can lead to difficulties. It becomes even more complicated and technical where transit privileges, etc., are in issue. The following citations indicate the routing complexities:

"When bills of lading bore the shipper's notation to stop at a transit point . . . but if bills of lading indicated a route over which the shipments were not entitled to transit at through rates, the initial carrier was under no duty to obtain further instructions from the shipper before forwarding." (41 ICC 612)

"If neither the carrier nor the shipper had notice that the shipments were to be mixed in transit there was no obligation

to forward by a route where transit rates were applicable." (129 ICC 739)

Must Be Just and Reasonable

Section one of the Interstate Commerce Act also touches on the routing of freight especially as related to the rail carrier's duty because all charges for transportation must be just and reasonable. Certain decisions pertaining to this section are here referred to as given below:

"If shipper is in doubt as to the cheapest route, he should tender the shipment without instructions." (18 ICC 190)

"In the absence of routing instructions, it is the duty of a carrier to forward shipment over the cheapest available route." (142 ICC 729)

"When the carrier has not so forwarded an unrouted shipment over the route having the lower rate, for the difference between the higher and the lower rate, and by general order of the Commission, the parties are permitted to make settlement on that basis." (294 Fed. 968)

"In the absence of specific through routing by the shipper, it is the duty of the carrier to route shipments by the cheapest reasonable route over which lawfully established rates are in force." (17 ICC 292)

"In the absence of routing instructions, a carrier is liable for its failure to forward shipments over the cheapest reasonable available route." (142 ICC 407)

"Where the bill of lading contains no routing instructions but names the lowest rate applicable from the point of origin to destination, shipments moving over a route taking a higher rate are misrouted by the carrier." (57 ICC 549)

"No duty rests upon the carrier to hunt up some unnatural connection by which traffic might reach destination at a slightly lower transportation charge." (26 ICC 423)

"A route several hundred miles greater than another available one between the two points cannot be considered the more natural route." (21 ICC 515)

"If unusual or circuitous movement is desired the necessary instructions therefore should appear on bills of lading." (115 ICC 518)

"In the absence of contrary evidence, it must be assumed that carriers were justified in forwarding shipments over the routes of movement." (169 ICC 705)

"An originating carrier is under no obligation to deliver shipments to its competitor at point of origin, even though the competitor participates in a cheaper rate to the destination of a particular shipment, as the originating carrier is entitled to a line-haul." (200 ICC 215)

"And a carrier cannot retain the long haul where there is another reasonably available route over which a lower rate applies." (190 ICC 191)

"Shipment was not misrouted when there was no lower rate than that charged over any route on the article shipped." (169 ICC 725)

Carrier's Duty Not Absolute

It is the part of wisdom to realize that "snap judgment" is a poor sub-

25 Years Sponsorship Of Materials Handling

(Continued from page 56)

on labor-saving machinery in warehouses discussed conveyors, cranes, operatorless elevators, trackless trains and chutes.

In March, 1944, a report of the 53d annual meeting of the American Warehousemen's Assn. at Chicago stated that Col. A. B. Drake, director, Storage Division, Army Service Forces, urged more intensive and ex-

New Freight Rates On Pallets

Changes have been made recently in freight rates on pallets. One which has not been officially approved, but which we understand is likely to be before this issue is off the press is:

(a) Within Official Territory—"Wooden Skids", no ibn, Class 32½.

Others which have been approved and which are now in force, but not generally known as yet by some local freight agencies, since they are relatively new rates, are as follows:

(b) Within and between Western Trunk Line and Southwestern Territories,—lumber rates plus 4 cents.

(c) From Trans-Continental Territory to the balance of the country, lumber rates plus 6 cents.

(d) Within Southern Territory,—lumber rates plus arbitraries of from 6 to 9 cents.

stitute for the gathering of data in regard to the shipper's right to route. The duty of the carrier is not absolute as shown by these citations:

"A carrier is justified in selecting its customary but more expensive route for an unrouted shipment, when the cheaper route would involve additional expense of handling, as switching, clerical work, mileage, interchange with another carrier, the requirements that the carrier select the cheapest route not being absolute." (3 Fed. Supp. 139)

"While it is ordinarily the carrier's duty to ship over the cheapest available route, this duty is not absolute, and the carrier is compelled to use that route only if other conditions are reasonably equal." (196 ICC 397)

"When shipments were not routed by the shipper, there is no obligation upon the carrier to move them over another route, for delivery, merely to afford shipper a basis for reparation." (186 ICC 35)

"When two routes were available carrying equal through rates but over one route the through rate exceeded the aggregate of intermediates, there was no duty on the carrier to forward the shipment over the latter route." (167 ICC 452)

On the other hand, assume a carrier has a rate from an origin to a destination on its own line which is higher than a joint rate with another carrier. Here is what the Commission has said:

"A carrier which is a party to a two-line joint rate lower than the rate applicable over its own single-line route is obligated to forward an unrouted shipment over the two-line route." (185 ICC 204)

tensive use of modern materials handling equipment, and quoted him as saying, "materials handling in warehouses should be approached with the same thought as it is in industry. Good manufacturing and good assembly are merely the efficient handling of materials."

These citations could be continued at great length, but there is nothing to be gained by laboring the point.

There is much to be gained, however, by shippers, carriers, warehousemen and distributors in knowing how, when and where to use modern materials handling equipment. There are still hundreds of industrial plants

Wrong Destination

Sometimes shipments are forwarded to the wrong destination. Again one can prove a negative as indicated by the following:

"Acceptance and signing of bills of lading by the teamster employed by the shipper to load cars only, did not bind the shipper as to routing when the carrier's agent billed the shipments to a wrong destination." (66 ICC 303)

"Misranging by the shipper of the destination, causing movement to another point not intended, was the shipper's own negligence." (42 ICC 489)

"Shipping being intended for New Bethlehem, Pa., a delivery to Bethlehem, Pa., under instructions specifying the latter destination 'P.R.R. delivery,' when delivery by the Pennsylvania was impossible, resulted in misranging by the responsible carrier, inasmuch as it had notice of the fact that such delivery was impossible and should have held shipment pending further instructions before making delivery." (163 ICC 268)

Water-Rail Routes

Under normal peace-time conditions routes embracing water-rail, or rail-water-rail, etc., movements, in competition with all-rail, are open to shippers, but it is not the duty of rail carriers to use such routes unless so instructed, as shown by the following:

"If a shipper desires his shipment to move by a water-and-rail route that is cheaper than the all-rail route, he must in delivering it to the initial carrier specify such routing, otherwise it is understood that the shipment is to move all-rail." (129 ICC 327)

Summary

The evidence submitted substantiates the declaration that the shipper has the right to route. It further shows that this right is circumscribed with defined requirements. True, the shipper may proffer his shipments without routing particulars, and then it is the duty of the carrier to use the cheapest route, but this is not efficient practice. It is merely "passing-the-buck" and frequently leads to controversy between the two parties, and loss on the part of the shipper.

It is obvious that routing of freight should not be done in any hit-or-miss fashion. Correct routing, to protect the shipper's interest, requires experience, careful attention to details and close scrutiny of freight tariffs. And when using citations to support an allegation bearing on routing it is well to heed the Latin phrase, *an guillam cauda tenes*, meaning, "It is an eel you hold by the tail."

that have much to learn about efficient and economical handling. Changing methods of distribution will require modernization of methods and a greater use of palletized unit loads. These have been proven feasible for a wide range of commodities by the Navy, as articles in *D and W* have shown.

Materials handling equipment manufacturers themselves have much to do in helping to educate management and labor in regard to wider and more efficient use of modern equipment. As Matthew W. Potts says, in an article in this issue, "the question now is: where do we go from here?"

WPB Sets Up Stockpiling Bureau

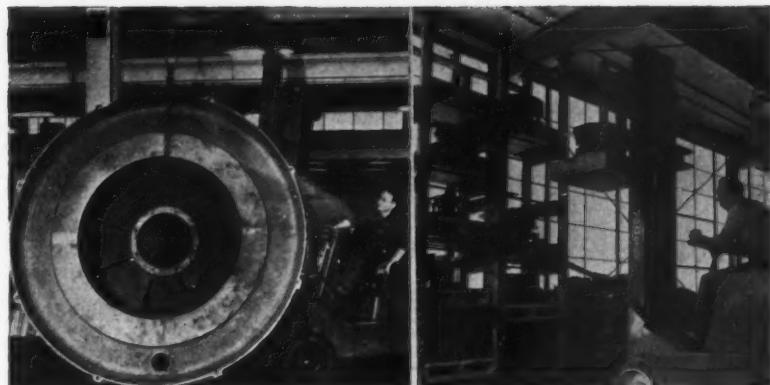
Charles E. Wilson, Executive Vice Chairman of the War Production Board, today announced the establishment of a Bureau of Stockpiling and Transportation within WPB. The new bureau, to be responsible to the Program Vice Chairman, consists of the Office of the Director, a Division of Stockpiling and Shipping, and a Division of Transportation and Storage.

Edward Browning, Jr., Bar Harbor, Me., who was acting director of the former Division of Stockpiling and Transportation, heads the new bureau. Mr. Browning has worked continuously on shipping and stockpiling problems for WPB and its predecessor agencies since 1940, when he came to Washington to join the Advisory Commission to the Council on National Defense.

Edwin E. Frost, who was chief of the Stockpiling Branch of the old division, and F. J. Sette, formerly assistant division director, have been appointed, respectively, to head up the Stockpiling and Shipping and the Transportation and Storage Divisions. Both Mr. Frost and Mr. Sette have been with WPB since its formation.

Willamette Hyster Builds

Willamette Hyster Co., Portland, Ore., builder of industrial lifting and moving equipment, has started on its first major construction project in three years. The structure is a \$113,000 assembly plant, by Wegman & Son, contractors. Installed will be assembly lines for fork trucks, straddle trucks and mobile cranes. (Haskell.)



LEFT: Fork truck equipped with crane arm and hook attachment at Cleveland Hobbing Machine Co. RIGHT: Filing dies at Westinghouse Automotive Air Brake Co., Elyria, O.

Fork Truck Adaptations

THAT machinery and equipment manufacturers are ingeniously adapting fork trucks to many new uses is brought to light in the plant of the Cleveland Hobbing Machine Co., Cleveland. That company's line of rigidhobbers and rigidturners is being quickly and easily handled by a standard fork truck equipped with a crane arm and hook attachment.

The crane arm and hook facilitates the lifting, handling and transporting of unwieldy objects. The crane arm is readily adaptable for specialized lifting operations that require reaching over obstacles such as highway

truck bodies, flat cars, stock piles and shop machines as well as moving materials which have little or no under-clearance, such as engines, castings, dies, long bars, structural shapes, items of machinery and other things commonly carried by chains, slings, chain hoists and cranes.

The crane arm attachment is quickly and easily interchanged with the standard forks of the truck. Suspended from the lifting carriage of the truck in the same manner as the forks, the entire crane arm attachment rides up and down with the

(Continued on page 138)

Invasion Equipment



SOMEWHERE IN ENGLAND. . . . Huge piles of material have been accumulated at Army Depots all over England for the invasion of the Continent. These U. S. Army Signal Corps photographs are interesting examples of current materials handling. At the left, above, U. S. soldiers are shown unloading reels of telephone wire from an English freight car, and are using a portable, gravity roller conveyor.

This seems curious in view of the advanced materials handling methods employed by other units of the Army. The question that naturally



comes to mind is: why hasn't the Signal Corps palletized this quantity of material for quicker, easier and safer handling?

The other photograph shows a good method of stacking by cross tying, and the use of the crane makes for easy handling in and out of storage. The rolls, incidentally, are British-made Clinton landing mats which are now being used to establish airfields and roads on soft ground behind the battlefields in Normandy.

Waterways and Terminals . . .

Los Angeles Ear-marks \$4,850,000 For Post-War Harbor Construction

The Los Angeles Harbor Commission has ear-marked \$4,850,000 for early post-war new construction at the Port of Los Angeles in a \$10,150,000 budget for the 1944-45 fiscal year approved in May.

In addition to the sum allocated for post-war development which, it was announced, will remain in each fiscal year budget until the close of the war, the current budget lists \$2,000,000 for deferred maintenance of transit sheds, docks, wharves and miscellaneous harbor facilities; \$809,099 for salaries and general operating expenses; \$628,103 for interest on bonds; \$483,000 for current construction of docks; and \$475,000 for repairs, alterations and smaller reconstruction.

The board announced that current-year revenue was \$3,140,000. Between July 1, 1943, and March 31, 1944, Los Angeles Harbor recorded an increase in freight movement of approximately 1,000,000 tons. Total freight movement for the 9 month period was 12,002,250 tons, compared with approximately 11,000,000 tons in the corresponding 9 month period a year earlier. (Herr).

Harbor Commission Leases 200 Acres

The Los Angeles Harbor Commission has voted to execute an agreement with the Federal government for use of 200 acres of a railroad classification yard north of the Wilmington section of the harbor until six months after the end of the war.

The area was purchased 10 years ago by the Harbor Department for use when natural development of the port would have required it for a railroad classification yard. The government took over the terrain after the outbreak of the war, and equipped it with tracks and buildings for use as a holding yard. The area is expected to have considerable value after the war for handling freight.

Rental under the agreement is \$17,790.33 for the period up to April 30, 1943, and \$833.33 per month thereafter until termination of the lease. (Herr)

Savings Cited By Lake Shipping

Based on the huge quantity of war essential commodities moved in 1943, savings in freight costs provided by Great Lakes ships as compared with land shipment were estimated to have reached \$350,000,000, L. C. Sabin,

Stronger and Lighter Freight Car Reported

A new and stronger box car weighing two tons less than standard, has been constructed of northwest plywood by the Great Northern Railway. Pacific Northwest plywood has been combined with steel in the construction of these 50-ton cars, believed to be the most modern in freight car construction. The outside and inside sheathings are of plywood $\frac{5}{8}$ in. thick. (Haskell.)

vice president, Lake Carriers' Assn., recently told the Cleveland Section of the American Society of Civil Engineers.

"In an emergency such as the present one, the value of the Great Lakes cannot be overestimated," he said. "While shipping on the Great Lakes plays a role of strategic importance in time of war, it also makes an outstanding contribution to the nation's economy in normal times," he said, pointing out that 55 per cent of lake commerce is iron ore; 29 per cent coal; 6 per cent grain, and 10 per cent stone, all important wartime materials. (Kline.)

Maritime Commission to Hold Hearings On Repeal of Deferred Rate Rebates

In its effort to ascertain what measures will be most beneficial to the post-war Merchant Marine and overseas commerce, the United States Maritime Commission has begun a study of suggestions that the prohibition of deferred rate rebates on ocean cargoes be repealed, the Commission has announced. A public hearing will be held in the near future, at which shippers, ship operators, and other interests affected will be heard.

Deferred rebates, legal in almost all maritime nations except the United States, have been a subject of controversy for more than 30 years. They were finally outlawed by Congress in the Shipping Act of 1916.

The system of paying such rebates to shippers had followed formation of rate rings or conferences by steamship lines. The conferences were formed as a defensive measure to

Port Fee Boost Asked By Milwaukee

For the third time since Pearl Harbor, the Milwaukee Harbor Commission has made a plea to the OPA at Washington for a boost in the fees to be charged for harbor dockage, unloading and storage. On two other occasions such a plea was denied by the authorities.

Early in May, Harry C. Brockel, Milwaukee's municipal port director, announced that another effort would be made to get an increase in fees, in view of the fact that the United States Supreme Court had decided that the OPA had no jurisdiction over the fixing of rates by a competent public body. Present rates are considered too low for the services rendered, are on a pre-war basis and not in line with present operating costs. (Hubel.)

Higher Dock Wages Allowed on Mississippi

Wage increases of 8c. an hour for approximately 1,000 Mississippi River dock workers were unanimously directed by the National War Labor Board recently to bring their rates up to rates for railroad and trucking company freight handlers working in Mississippi ports.

The dock workers are employed by the following three companies which handle the bulk of freight transportation on the Mississippi: American Barge Lines, Federal Barge Lines and Mississippi Valley Barge Lines.

limit competition between members and also cope with competition from tramp ships and other casual carriers who were not members. Mere organization of the conference, however, was found not fully effective in checking outside competition and the deferred rebate system was devised to furnish an incentive for patronizing conference vessels.

The general principle upon which the system worked was: If a shipper used the facilities of the conference exclusively for a period varying from four months to a year, the shipper could make application for a rebate and if the claim was allowed the carrier, after another period of exclusive use, generally the same as the first, would pay the rebate, generally 10 per cent of the freights paid during the first period. The succession of rebates could continue indefinitely.

"The principal objections to the deferred rebate system," the Maritime Commission explains, "were the deferred feature of the payments, the secrecy surrounding the rebates and the rates on which they were based, leading to discrimination between shippers and the denial of shipping facilities to shippers who refused to use exclusively the lines offering the rebate."

"With the requirements of publicity for conference agreements and rates made thereunder and prohibitions against discrimination, the question arises whether the statutory prohibition against the deferred rebate system should be modified."

Ocean Freight Forwarders Exempt from OPA

Charges of foreign freight forwarders have been exempted from price control by the Office of Price Administration. In general, foreign freight forwarders perform all services required for clearance of shipments consigned to foreign countries. The exemption became effective May 22.

Investigation has shown that there are approximately 500 foreign freight forwarding establishments in the United States, and that the current volume of business is only approximately 50 per cent of the pre-war level. This has resulted in an oversupply of these services, which has permitted competition to operate in a normal fashion. Consequently, the prices charged for these services have not risen, nor do they threaten to rise, in a manner inconsistent with the Price Control Act, OPA states.

It has, therefore, been deemed desirable to place foreign freight forwarders on the same basis as custom house brokers, whose charges were exempted from price control in Aug., 1943.

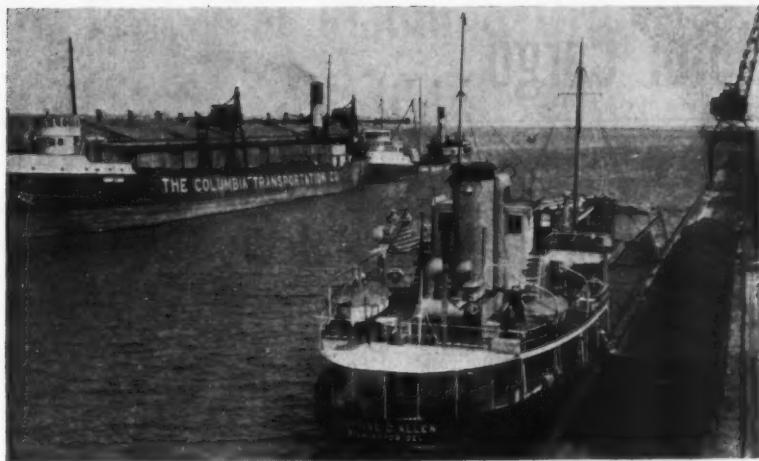
Bright Future Predicted For Port of Baltimore

Baltimore "is one of the great ports of the world," Maj. Gen. Philip Hayes, commanding general, Third Service Command, stated after a recent inspection of Baltimore's harbor facilities. The general expressed amazement at the "sheer size of the shipyards, outfitting docks and similar works" in the local harbor.

Gen. Hayes predicted that Baltimore Harbor "situated as it is, with the facilities now built up for military use which later can be converted to the needs of peacetime trade, is likely to remain one of the great ports of the world in the post-war years." (Ignace.)

Carloader Buys Maritime

Maritime Shippers Service Co., Los Angeles, Cal., has been purchased by the Carloader Corp., New York City, subsidiary of the United States Navigation Co. Carloader Corp. specializes in direct, through carload shipments and will operate from points in New York State to all ports in California. Offices are to be maintained in Los Angeles, San Francisco and Oakland. (Herr.)



Various types of shipping at Milwaukee's Municipal Outer Harbor showing tanker, lake bulk carriers and Canadian canal vessel discharging cargo.

Great Lakes Shipping After the War

By WILLIAM KIRSCH

Chief Statistician,
Wisconsin Department of Agriculture

BEFORE the war there was considerable movement of freight traffic on the Great Lakes. In 1942 the lakes were stripped of vessels. Package freight carriers were removed by the United States and Canadian governments. There are some small bulk freight types left but, in general, they are not moving very rapidly.

The Maritime Commission is making plans to resume package freight traffic after the war. Its importance so far as agriculture is concerned cannot be over-emphasized. The northwestern part of Wisconsin shipped before the war considerable quantities of dairy and poultry products. It is contended that if it were not for the rate savings incident to water traffic the smaller dairy and egg plants could not sell their products in the East. It is pointed out that in the case of flour and feed the saving by the use of water is 50c. a ton to eastern destinations; as the value of a commodity increases the savings increase proportionately.

Significant Statistics

In 1940, 67,326 tons of butter, and over 90,000 tons of all dairy products were shipped through Duluth to other United States ports on the lakes.

Export shipments consisted of corn, 127,000 tons; fruits and vegetables, 191 tons; oats, 1,952 tons; wheat, 101,759 tons. Shipments through Mil-

waukee in that year consisted of cheese, 2,906 tons; cream, 175 tons; fresh meat, 47 tons; canned milk, 1,935 tons; canned goods, 4,829 tons; corn, 15,887 tons; flour and feed, 176,135 tons; wheat, 9,360 tons. These are only a few examples of lake shipments and they illustrate what can be done with reference to lake traffic in the future.

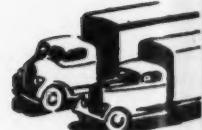
Three Important Elements

There are three elements to be considered in the proposal for the resumption and expansion of Great Lakes traffic: 1. the general economy of the states bordering on the Great Lakes; 2. the question of competition between railroads and water traffic; 3. the question of employment in the lake ports.

So far as the factor of competition is concerned it is pointed out that water traffic furnishes a competitive factor of considerable importance and tends to keep railroad rates down. Thus, in 1930 in a single year, 50,000 tons of canned goods were shipped from Milwaukee by water to eastern points. They consisted almost entirely of canned milk and canned vegetables. In order to obtain some of that business the railroads slashed rates very sharply and recaptured a good deal of this business.

After the war the lakes may assume
(Continued on page 120)

Motor Cargo . . .



Joint Rates and Routes Recommended For Highway, Rail and Water Carriers

In a preliminary report to Congress on the "Relative Economy and Fitness of the Carriers" the Transportation Board of Investigation and Research has recommended the establishment of reasonable joint routes and rates for carriers by highway, rail and water.

The report termed freight rates the heart of the nation's transportation policy and called for a definite national rate policy.

In reviewing the technical and economic research program of the Board the report states:

"In addition to the study of Federal regulatory restrictions on interstate motor carriers the Board has made a survey of the effects of State trade barriers upon the relative economy and fitness of commercial motor carriers. Particular attention has been given to the subject of non-uniformity of size and weight limitations on vehicles. The survey indicates that carriers in contiguous States maintaining unlike restrictions on sizes and weights tend to operate the same type of equipment and weight of loads in these jurisdictions, and that such States tend to build roads and bridges that will support within reasonable limits all interstate traffic.

"A number of complicated economic and legal questions are involved in the question of trade barriers. The Board is continuing its interest in the problem and expects to be able to make in its final report recommendations which should serve to eliminate those restrictions that can properly be labeled barriers."

Text of the Board's specific recommendation on routes and rates follow:

"That the transportation policy of the Congress be amended to provide: (a) that the transportation services of all common carriers be furnished in such a manner that the shipper will have a freedom of choice in the selection of reasonable joint routes and rates by the use of such transportation agencies and facilities of the same or different types as may be needed to foster and serve commerce economically and efficiently; (b) that in the effectuation of this policy the Interstate Commerce Commission shall require carriers by rail, water and motor to establish reasonable joint through routes and facilities for the transportation of property with reasonable joint rates, charges, classifications, rules and regulations applicable thereto; (c) that all rates and charges shall be free from discriminations, preferences, prejudices (except where clearly justified), or inequalities which are injurious to commerce and shall be in reasonable relationship to the cost of the service and the revenue needs of the carriers; and (d) that no limitation or restriction designed to limit or prevent competition shall be imposed upon any carrier or transportation service which shall have the effect of increasing the cost of the service to the public."

The Transportation Board of In-

Clearing House Set Up For Damage Claims By Chicago Truckers

Central Motor Freight Assn., Chicago, plans to reduce loss and damage claims incurred in motor truck transportation by organization of a clearing house where information on over, short and damaged shipments can be exchanged by members.

The new service, to be established at Chicago headquarters of the organization, will be patterned on similar activities conducted by rail carriers, and is expected to save hundreds of thousands of dollars annually to the membership, which represents a majority of motor truck operators in a five-state area centering around Chicago. (Slawson)

vestigation and Research is an independent, temporary agency established by title III, part I, of the Transportation Act of 1940. The term of the Board was to run two years unless extended by a proclamation of the President for an additional period of two years. The Board assumed office on Aug. 22, 1941, and on June 26, 1942, the President issued a proclamation extending its tenure to Sept. 18, 1944.

War Labor Board Orders Not Reviewable By Courts, Federal Appeals Court Rules

The United States Court of Appeals for the District of Columbia ruled last month that orders of the War Labor Board are not reviewable by the courts.

The ruling was on an appeal brought by the employers' group of Motor Freight Carriers, Inc., an association of carriers and individuals representing about 300 trucking companies transporting freight in New England.

Three appeals court judges who heard the case—Miller, Edgerton and Arnold—held unanimously that "It is clear and undisputed that no statute authorizes review of the War Labor Board's orders."

"The legislative history of the War Labor Disputes Act," the opinion said, "implies a positive intention that these orders should not be reviewed. Aside from that important and probably conclusive fact, the question is whether general equitable principles authorized review. We think not."

British Carriers Form Unified Road Federation

The National Road Transport Federation, a dream of far-seeing road operators in Britain for the last 30 years, has been brought to the point of realization and will be an actual fact in a few weeks time.

This Federation has been formed to advance in one unified form the interests of road transporters and is an amalgamation of seven major road groups, representing the household movers, commercial vehicle users, express carriers, transport employers organizations, haulage contractors, and passenger transport groups.

The negotiations which led to this development have taken two years and have been at some stages delicate in view of the conflicting interests of certain of the units now safely confirmed in the policy of one solid central organization.

The stated policy is that it will be truly democratic in that the smallest operator may hold the highest office. It will uphold the principles of private enterprise and will resist penal taxation and other discriminatory measures.

Chiefly responsible for the fusion is Lord Perry, chairman of the Road Transport Organization Joint Conference who predicted that railways would be used for special duties leaving the real job of transport to be done either by road delivering from door to door, or by air. (Robin Walker)

Integration Hit, Post-War Planning Urged, At 11 Western States' ATA Conference

Some relief seen in manpower shortage, but outlook for new vehicles held discouraging. Lack of uniformity in state traffic laws condemned. Norstrom of Oregon named new chairman.

THE 500 delegates and visiting motor carrier executives who attended the Eleven Western States Conference of American Trucking Associations, Inc., at San Francisco June 6-7, took home with them two main impressions: that integration of transportation would not be in the best interests of the trucking industry, and that post-war planning activities present motor carriers with an immense opportunity, but one that calls for intelligent and coordinated action.

These were the two subjects that aroused the most interest and it is perhaps significant of the health of the industry in the west, and its belief in an expanding future, that there was more discussion along these lines than preoccupation with present difficulties. The latter, western trucking's stringent manpower problem, and the equipment supply picture in particular came in for examination, but most operators apparently seem to feel that these are almost in the same class as Acts of God.

Relief Seen

Some relief was seen from crippling draft inroads on essential personnel, but the outlook for new vehicles was described by Ted V. Rodgers, ATA president, as more "discouraging" than otherwise.

Preparing to play its part and assure adequate consideration of the industry's needs in connection with the great overall industrial expansion of the far west, the Conference took one significant step: it resolved to tie in closer to the State Council of Governments, and with Builders of the west, two organizations planning for continuing development of western states resources and potentialities.

Integration Opposed

One of the most significant addresses was that by Senator Pat McCarran, programmed as "Non-Integration of Transportation," given at the luncheon on the second day of the meeting. After sketching the development of transportation in this country and pointing out that because of its choice, diversity, competitiveness and responsiveness it has been "a people's system," Senator McCarran warned against abandoning or restricting choices and hardening the arteries of transportation.

He condemned the proposed formula of "integration with competition" as meaningless and warned of what he considered the great danger

By ELSA GIDLOW

• • •

in such thinking. "Words like 'integration,'" he said, "have a special meaning to certain minds; particularly those minds that would fatten things so big that they become dangerous, and which, being dangerous, carry within themselves the seeds of a plausible justification for their being taken over by the Government."

Examining "this proposed integration," Senator McCarran said: "Obviously the integration which is advocated is not and cannot be an arrangement between equal partners. Throw all branches of transportation into a single unit, and one of those branches in bound to take control. Investment, entrenchment, power and magnitude, would automatically become dominating factors. Competition would be almost wholly eliminated, and all of the transportation services would be made subservient to the interests of the one."

Transportation Disjointed

Senator McCarran said he was opposing the scheme because, he thought it was mistaken. He admitted that "our transportation system today is in many ways disjointed, inefficient, and wasteful, that it has many shortcomings, but that the proposed remedy would be worse than the present condition.

"Freedom of movement is vital to our democracy," he concluded. Constrict that by making it possible for one agency of transportation to dominate others, and we will have given a body blow to the American way of life.

We are not going through a period of industrial integration. We are facing a period of tremendous evolutionary change. . . . In the great changes we face, the West, with its tremendous and barely touched resources, facing the Pacific, is going to play a great role.

Other Speakers

Other speakers at the early session included Col. W. J. Williamson, chief, Traffic Control Division, Office of Chief of Transportation Corps; Rex L. Nicholson, managing director, Builders of the West, Inc., who sketched a few verbal blueprints for the post-war west; Fred Grumm, chairman, Eleven Western States Highway

Officials; Perry H. Taft, regional representative, Council of State Governments; and Ted V. Rodgers, President ATA.

Manpower

Mr. Rodgers cheered his listeners by suggesting they might hope for relief from the worst of their manpower problems. He said a new draft directive issued recently by National Selective Service Headquarters may check loss of personnel through provisions calling for reviews of the classifications of essential men in the 26-29 age bracket. While decisions depend on local draft boards, he said, the obvious inference is that reviews are intended to delay inductions of 1-A registrants by giving them deferred status.

Replacements and Barriers

Mr. Rodgers said that government estimates promised about 75 per cent of a 1944 production goal and that "even should the whole program be accomplished (giving 88,000 powered units and 25,000 trailers for civilians) the production would not be sufficient for the trucking industry, which normally in peacetime requires upward of half a million trucks a year for replacement purposes."

He said planning should be under way for the 1945 program. He criticized lack of uniformity in the traffic, size and weight laws of the various states which make it as difficult for motor carriers as if they were travelling between foreign countries. Necessities of war transportation have caused removal of some of the barriers, he said, and these gains must be kept postwar.

Tools and Tires

The tire situation was described as "critical," and Mr. Rodgers said if more grief for operators is to be avoided there was needed "greater recognition of the highly important part trucks play in winning the war and in maintaining civilian economy. We do not ask that others suffer at our expense. All we say is, give us the tools and we will do the job."

"We were able last year to set a record for tonnage hauled, a peak of 10 per cent greater than in any preceding year, and traffic thus far has held up well in 1944, but the belt has been pulled in almost to the last notch. Truck operators must be given those things they need to keep vehicles

rolling. Consequences of a motor carrier breakdown would be drastic."

Other Speakers

Other speakers were: J. P. Spaenhower, chairman Eleven Western States Conference; Gov. E. Guy Warren of California; Col. Alexander R. Heron; Leland James; R. H. Crawford; H. M. Stilley on "Synthetic Tires and their Care"; Ray Lilienquist; Ed Barry; FBI agent N. J. L. Pieper; O. R. Craven.

The Truck Owners Association of California postponed its annual con-

vention to hold it at the Palace Hotel in conjunction with the Eleven Western States Conference and TOAC secretary Roy Thompson, stated that his membership was well pleased with the get-together.

New Officers

Newly elected officers are: Ted V. Rodgers, was re-elected president; George Norstrom, Oregon, chairman; T. L. James, Colorado, vice chairman. Rex Shepherd and Shipley D. Burton were re-elected treasurer and secretary respectively.

Lack of Parts Said to Have Reduced California Trucks 25,000 Since '41

Transportation of farm products in California is confronted by serious problems in 1944, mainly due to shortages of equipment and drivers to man the trucks, according to information gathered at a series of meetings held in various sections of the state recently to work out local and statewide programs for moving crops to markets and processing plants.

In addition to an acute shortage of men and rolling stock, the number of vehicles available on the west coast is said to be 10 to 25 per cent less than in 1943. The severity of the transportation "pinch" is being felt throughout the Pacific Coast area and is brought into sharp focus whenever crop ripenings (which follow each other in rapid succession in California, Oregon and Washington) cause a demand for trucks even slightly above normal.

At a recent conference in San Francisco, Robert Hicks chief of the farm vehicle section ODT disclosed that there is much less manpower available this year to work and transport crops. The ODT and War Food Administration have collaborated in a plan which calls for the WFA to contact individual farmers to explain the need for full utilization of farm trucks, truck aid to neighbors, and use of the nearest practicable market or loading zone for depositing harvested crops for movement to processing plants.

Another insight into the gravity of the truck situation was given at a recent session of the sub-committee of the U. S. Senate Military Affairs Commission. Meeting in San Francisco under the chairmanship of Senator Sheridan Downey, the sub-committee was advised that there will be available in California only 195,000 trucks this year as contrasted with the 220,000 registered in 1941. Lack of replacement parts has caused withdrawal of the others, the committee was told. (Herr)

Demurrage Charges On Trucks Protested

An Interstate Commerce Commission order setting up demurrage charges on motor cargo equipment was termed a serious handicap to industrial firms in the Youngstown dis-

Must Make Trucks Last, ODT Warns Operators

The nation's truck operators have been urged again by the Office of Defense Transportation to intensify their efforts to keep their vehicles in proper repair so as to obtain many more miles of operation than would be required under normal conditions.

Strict adherence to a plan of systematic preventive maintenance and repair, the ODT said, should prolong the life of the average truck as much as three times its ordinary span.

The industry's available manufacturing capacity is large enough to produce trucks in quantity for either military or civilian use, but not in sufficient volume to meet both demands, the ODT explained.

The 88,000 new trucks scheduled for civilian use this year, the ODT emphasized, will not be enough to supply all who desire new equipment, and most operators will have to make their old trucks last.

trict who are large users of highway trucks, according to John D. Clark, manager, Youngstown Chamber of Commerce Traffic Bureau, who spoke at a dinner of traffic men in Warren, O., recently.

Use of Airplane Engines for Trucks Predicted as Post-War Possibility

Adaptation of aircraft-type engines for service in heavy-duty ground vehicles operating in the commercial field is a post-war possibility. Vincent C. Young, of Wilcox-Rich Division, Eaton Mfg. Co., Detroit, told the National War Materiel Meeting of the Society of Automotive Engineers at Detroit last month.

Mr. Young said ground vehicles can use many of the aircraft engine's war-developed qualities, such as light weight, high power, good economy, and reliability.

Commercial motor vehicle operators, seeking to transport the greatest payload over the most miles at the

He said that local shippers have no control over the time when trucks are placed at their loading platforms; therefore, the demurrage charge of \$2.80 an hour would work a serious problem on them, especially in view of the manpower shortage. Demurrage goes into effect two hours after a truck is placed or four hours after a detachable trailer is placed, under the new order. (Kline)

Gary, Ind., Enjoined From Enforcing Tax

A decision of importance to the trucking industry was handed down last month in superior court of Lake County, Ind., when Judge Joseph Egan enjoined the city of Gary from enforcing its street-use tax, aimed at taxing any and all vehicles carrying goods over Gary streets.

The test case, brought by agreement between the city and three truck associations last Fall, with Roosevelt Cartage Co., Chicago, the defendant, went to the court with the city agreeing to try to enforce the ordinance until court action was completed. Samuel Dubin, attorney for the city of Gary, now announces that he will take the case to a higher court.

The Central Motor Freight Assn., represented by David Axelrod, attorney, and the Indiana Motor Truck Assn. and the Illinois Motor Truck Operators Assn., represented by Fred Eichorn, pleaded that the new ordinance was in violation of Interstate Commerce Commission regulations and also against Indiana state law. The superior court ruled with the truck association attorneys on all counts.

Bulletin on Waxes

Shortages of many mineral and vegetable waxes has caused manufacturers to turn increasingly to substitutes, replacements, and extenders. In order to provide a ready reference to these waxes, a new technical bulletin has just been issued, entitled "Waxes for Today and Tomorrow." Copies of this booklet can be obtained free upon request from Distributing & Trading Co., 444 Madison Ave., New York 22.

least cost, he added, will appreciate the high volumetric efficiency and low operating costs of the aircraft engine, especially since post-war fuels probably will be more heavily taxed.

Warning that experiments might lead to a high percentage of failures during the development period, he said such failures must be recognized as steps in progress toward lighter, more efficient engine designs.

He recommended that engineers of ground vehicles learn to develop higher power outputs at the higher speed ranges, to make use of the high heat conductivity of some metals, and to study effective, cooling methods.

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Cold Storage . . .



Freezing Meats In Cold Storage

The following advice on this subject is offered by a member of our Committee on Plant Operations, Frank Roos of Davenport, Iowa:

When receiving carloads of fresh boxed meat such as pork loins, hams, butts, etc., for freezing much labor can be saved by tiering to regular piling heights using 2x2 or 2x3 short Dunnage under boxes and spacing same about 2 in. vertically with about 2 to 3 in. spacing between tiers. This method will give good freezing time if your temperatures are fairly well below zero.

The foregoing method is almost a necessity where the holding time is so short, most government meats remaining only two or three weeks. Then again there is a tremendous loss of floor space if not handled in this manner.

We use two-wheeled skid platforms to good advantage by loading wrapped bundles of bellies on them direct from the car and leaving space around each layer. These skids will hold close to 2,000 lb. and we then take them direct to the freezing room and they are left that way until frozen. They are then taken to the spot where they are to be piled. The foregoing will save at least one-half the handling labor. The same skids can be used for other products as well." National Assn. of Refrigerated Warehouses, News Letter No. 22.

75% of Wartime Food Experiments Held Practical for Civilian Use

Deferments Asked For Warehouse Workers

Declaring that employees of warehousing, dry, open or cold storage of essential perishable and non-perishable commodities are essential to transport, and should be included in the list of draft registrants of over 26 who are being approved for deferment, the American Trucking Associations recently wired Selective Service directors urging such deferments.

The action was taken in the face of a critical shortage of labor in the warehousing industry, which in many instances has hampered the prompt unloading of cars and trucks and has interrupted the orderly flow of perishables destined for shortage.

Plan Quick Freezing

Owners of Storrs & Harrison Nurseries, Painesville, O., which recently changed hands, are reported to be contemplating a post-war business in processing and quick-freezing of fruits and vegetables on an extensive scale. (Kline)

WFA Will Continue to Push Its 13-Point Overall Food & Fibre Storage Program

The War Food Administration has announced that it will continue to push forward on its over-all food and fibre storage program which includes the following 13 points:

1. Getting out of cold storage the products that do not require it, and using low-temperature space only for products that require it.

2. Speeding up processing, to cut down the time processed products need remain in cold storage.

3. Preventing reservation of empty space for future needs.

4. Forcing removal from storage of excess stocks of frozen fruits, vegetables, and poultry.

5. Conducting a program of making space convertible from 'cooler' (32-50 deg. F.) to 'freezer' (31 deg. F. and below) and vice versa.

6. Restricting the storage period for all commodities to 10 months.

7. Obtaining from all warehousemen semi-monthly reports on their available space, and conducting information centers throughout the country to tell commodity handlers where to get space.

8. Working with warehousemen to obtain the most effective use of their space.

9. Encouraging the storage, during off seasons, of general commodities in private space built for the seasonal storage of particular commodities.

10. Getting expansions of facilities (almost all with private funds) in areas of greatest need.

11. Maintaining regular contact with the industry through the Refrigerated Warehousing Industry Advisory Committee while developing and carrying out this program.

12. Exchanging information among Government agencies through the Inter-Agency Cold Storage Committee.

13. Collecting and releasing complete, up-to-date information on (a) space capacity, (b) space occupancy, and (c) commodity holdings.

R.R. Orders

The following orders have been placed with Mt. Vernon Car Mfg. Co., Mt. Vernon, Ill., a subsidiary of H. K. Porter Co., Inc., Pittsburgh, Pa.: Pacific Fruit Express, 500 refrigerator cars; Western Pacific, 100 box cars; Chicago & Eastern Illinois, 200 steel hopper cars.

Three-fourths of the scientific and technological effort now under way on behalf of our fighting forces will find its eventual application in civilian fields, Maj. Gen. Stephen G. Henry, director of the War Department's New Developments division, recently told the fifth annual conference of the Institute of Food Technologists at Chicago. In this direction he listed developments in processing dry whole milk and the expansion of the field of dehydration to include a greater variety of products, improve their storage properties and acceptability through improved production methods.

Investigations now under way with fish, soya and cereal products as new sources of protein, Gen. Henry also considered as having significance for the future.

In the frozen foods field he mentioned experiments to determine the keeping qualities of frozen eviscerated poultry under different temperatures; the use of frozen boneless beef and pork; and the utilization, in frozen form, of fish formerly thrown away. "Rose fish," said Gen. Henry, "has within a decade created what amounts to a new industry."

In considering post-war plans for the food industry, Russell S. McBride, food consultant, Washington, D. C., warned that the most important factor to remember is the fact that the total food market is rigidly limited.

"The technologist who plans skillfully," he said, "and the company which successfully exploits a post-war program must find new business by taking that business away from somebody else. There is almost no exception to this rule. If bread becomes more attractive to a community, that community will eat less of some other cereal or carbohydrate food. If housewives buy more of one meat product, they will inevitably purchase less of some other protein food stuff. Each food is competitive with all others. Growth in one business means a shrinkage in some others." (Slawson.)

\$165,000 Expansion Planned

Security Warehouse & Cold Storage Co., San Jose, Cal., has plans prepared for making additions to its cold storage, freezing and packing house facilities in Santa Clara, Cal., at a cost of approximately \$165,000. The firm operates a combined cold storage and ice manufacturing plant in San Jose, and cold storage and ice plant, with freezing and packing house facilities, in Santa Clara. (Herr)



Mr. Manufacturer, CAN YOU TOP THESE?

The quotations used in this advertisement are from responses to the A. N. A. Committee of Paper Saving.



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This advertisement contributed by this publication and prepared by the War Advertising Council in cooperation with the War Production Board and the Office of War Information.

A LEADING COSMETICS MANUFACTURER REPORTS:

"We cut down the size of our gift boxes and standard packages to effect an over-all saving of approximately 25% of the paper and cardboard; standardized our window displays and eliminated

all die-cuts, as well as steps, shelves and secondary planes. We also folded all displays in half to save more than 50% of the paper and paperboard normally used."

A BIG PLATE GLASS COMPANY REPORTS:

"Our 1944 Color Book was reduced in size and quantity, resulting in a paper saving of 136,000 pounds. Our Color Cards, of which four or five million are used annually, were reduced in size at an approximate reduction of 50% in paper tonnage. We have eliminated our Dealer Sales Portfolio. Our Color Book has become a 'self mailer,' eliminating need for envelopes."

ONE OF THE TOP LIFE INSURANCE COMPANIES REPORTS:

"In 1944 we will continue to specify lighter weights of paper wherever possible and take all possible steps further to reduce paper tonnage. We are instructing our field offices to scrutinize carefully all requests for printed material and to disapprove all requests for quantities that appear excessive."

A FAMOUS ADDING MACHINE COMPANY REPORTS:

"In advertising and promotion we are using about 30% of the amount of printing and paper used in 1941 — that represents about 2/3 saving. However, further savings will be effected whenever possible this year as last."



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Equipment — Services — Supplies

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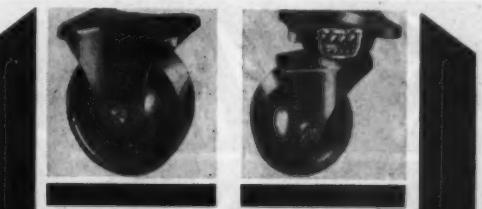
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HANDLING

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For Counting Small Parts

A new double ratio scale designated as Type 1133-C is offered by The Howe Scale Co., Rutland, Vt., which is said to be especially adapted for counting small parts because of the unusually high sensitivity provided by a third pan attached to the lower beam lever. Described as fully automatic, this fan bench type scale is designed for the quick, accurate counting and weighing of materials in shipping, receiving and production departments as well as for inventory and similar counts of small parts. No ratio charts, reference tables, or mental calculations are necessary, it is said.

A typical application for the third pan on this scale is in making up "counters" or unit lots, to count large numbers of small pieces. Designed for use with the high ratio pan only, the third pan provides a ratio of 10:1 between these two pans. The sensitivity of this combination is more than 10 times greater than that between the platform and the regular 10:1 pan.

In issuing 30,000 nuts from stock, for example, 300 nuts are required as counters on the ordinary double ratio counting scale.* Instead of counting that number by hand, 30 can be placed in the 100:1 pan and nuts poured into the third pan until balance is obtained. The total in the third pan will be the required 300. These are transferred to the 100:1 pan with which, it is reported, a count of 30,000 can be made on the platform.

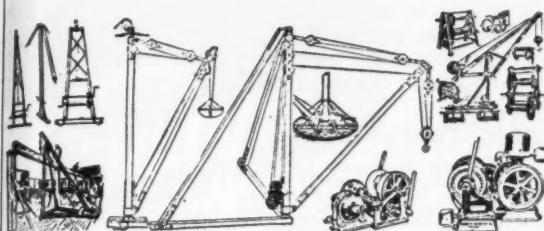
New Cold Padding Glue

One of the new scientific developments of adhesive chemical research is "Pliatab," a synthetic resin type cold padding glue. According to Paisley Products, Inc., Chicago and New York, this new product successfully replaces old pre-war rubber latex compounds. It is available in red or white (natural) color, in containers ranging from 1 qt. to 55 gal. drums.

It is said to be ready to use, applied by water-moistened brush, or dilutable with water for spray guns. It is said to be thoroughly flexible, yet so tough the pads stand up under roughest handling, and can be used with or without cloth backings. This product, one of many new formulas recently perfected by Paisley Scientific Adhesive Service, is said to serve equally well with all grades of papers, backing boards, and for many special gluing operations on cloth and leather bindings.

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Chain of Tidewater Terminals	67
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Electric Chain Hoist

Designed for users preferring chain hoisting, the small "Handi-Lift" developed by Harnischfeger Corp., Milwaukee, Wis., is said to introduce many new features into the low price electric chain hoist field. Increased utility is claimed for the "Handi-Lift" by quick interchangeability to bolt, hook, or trolley mounting, with changeover requiring the loosening of one bolt only. Also, in trolley service, it can be suspended either parallel or crosswise to beam for greater flexibility. Fully enclosed construction permits use under any condition of weather, dust, moisture, or acid fumes, it is said.

While the unit is rated at 500 lb., a hoist motor supplies reserve capacity. The chain is proof-tested for 1800 lb.

Operation is by pull cord actuating a simple lever toggle arrangement, which leaves one hand free to guide the load. The chain wheel, which is forged of high carbon steel and heat-treated, is splined to the drive gear. Overtravel of hook at both upper and lower limits is prevented by a zinc die cast safety limit stop which also actuates control for raising and lowering loads. Dual braking is provided by a large spring-set electric motor brake which automatically releases when hoist is operated and sets instantly with shut-off current. Lowering control is by dynamic means supplemented by the spring set brake which holds the load, should current fail. All brake parts are said to be die cast.

Box Truck

Acro Tool and Die Works, Chicago, Ill., makers of tools, dies and special wood products, has recently announced a new industrial box truck for handling materials, parts, packages, etc. According to the manufacturer, the new hand truck is designed to speed up the movement of materials and reduce extra handling.

Built of clear stock kiln dried oak 1 in. thick, joined together with screw and bolt fastenings, each corner reinforced with a 2 in. supporting post, the new truck is said to withstand punishing abuse.

Standard units to be shipped from stock are 28 in. wide, 42 in. long, 34 in. high, and are equipped with 5 in. heavy duty casters, 2 swivel and 2 stationary. Other truck sizes are made to order.

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The Frog Brand trademark has long stood for the best protective work clothing for the man who must work in damp or wet conditions. Though now enlisted in the War Effort, Sawyer is already studying methods, materials and the requirements of post-war industry so that Sawyer's Protective Clothing bearing the Frog Brand will continue to lead the way in its field.

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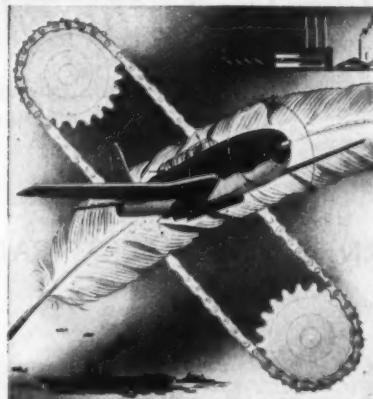
Sedgwick Machine Works 85

MOTOR TRUCKS

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International Harvester Company 11

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Behind the tremendous load-lifting capacity of Sedgwick elevators is an exclusive principle of operation called "Roto Drive". Sedgwick Roto Drive is used on carrier airplane elevators; on ammunition hoists, food lifts, passenger and freight elevators on hundreds of ships serving all over the world. It has many advantages:

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2. With Roto Drive the car or load-lifting platform cannot travel beyond a predetermined point and can be installed in tight places where there is a minimum of overhead and/or pit clearance.
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Belt Type Piler

A portable, inclined, belt type conveyor for loading, unloading, stacking and elevating cartons, cases and bags is now being marketed by Standard Conveyor Co., North St. Paul, Minn.

A different method for lowering and raising the carrier frame is said to be used on this machine. The adjustable part of the frame is fully counterbalanced. It can be adjusted either from the floor or from the top of the pile. The absence of all supporting structures under the adjustable boom is said to make it possible for this part of the piler to project over the pile or into car or truck without interference.

It is made in three sizes with the high end of the carrier adjustable up to 7 $\frac{1}{2}$, 8 $\frac{1}{2}$ and 9 $\frac{1}{2}$ ft., which provides for stacking of commodities up to 12, 13 or 14 ft. It can handle individual commodities up to 100 lb. or a total uniformly distributed load of 25 lb. per foot.

The piler is said to be especially useful for crowded places, platform work and for truck loading. It is entirely self-contained with the power mechanism mounted on the base frame of machine. Motor-driven, it is provided with cable for plugging into any convenient electric power outlet.

New Detachable Coupling

A detachable brass coupling for helical flexible metal hose in sizes from $\frac{3}{8}$ -in. to 1 $\frac{1}{2}$ -in. i. d., has been developed by Packless Metal Products Corp., New Rochelle, N. Y. It is said to be mechanically self-sealing. No brazing is employed, the manufacturer states, no heating of the hose to weaken it at the point where flexing and vibration place the greatest strain on the hose.

The unit is said to consist of four parts: the nut, back stem and split ring. When assembled the convolutions of the hose and the metal braid are said to be securely held by pressure between the members. It is claimed for the coupling that it withstands pressure tests of up to 800 lb. An additional feature is said to be the self-contained union.

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PLATFORM and HAND NOSE TRUCKS for various Warehouse and Cargo use.

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TIRES (Motor Truck)

General Tire & Rubber Company	27
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EWC WHEELS
Electric Wheel Co., Dept. DW, Quincy, Ill.

D and W, July, 1944—87

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of Keokuk

RUBBER TIRED TRUCK WHEELS

THOMAS MAKES



RUBBER WHEELS

- Easy rolling tires
- Prevent floor damage
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Third - Wheel Feature provides foot pedal for easy "break-over", gives better load support, better balance, and permits loaded truck to stand alone.

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Sasgen Derrick Company 83
Silent Hoist Winch & Crane Company 83

WINCHES (Motor Truck)

Wood Industries, Inc., Gar. Front Cover

Controller for Fork Trucks

Improved economy in current consumption is indicated as the significant feature of the new M-79 simplified four-speed reversing controller for electric and gas-electric trucks manufactured by Elwell-Parker Electric Co., Cleveland, O.

Experience in operation under war conditions is said to have shown that when motor current is restricted by introducing resistance on first, second and third speeds, a wasteful amount of current can be consumed by running the truck for protracted periods on any of these three speeds. The major portion of this possible waste of current is said to be prevented by the M-79 controller, which uses resistance on the first speed only.

An additional power saving is attributed to the manipulation of the motor fields, connecting them in series on first and second speeds, which produces greater torque with less current consumption. The welded housing of the new controller is dust tight and is reported to meet all specifications for flash-proofing. M-79 controller is installed on all Elwell-Parker electric or gas-electric low and high lift trucks in capacities up to 10,000 lb.

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Pool Car Distribution

Member: A.W.A. & M.W.A.

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OFFICIAL SEAL

LEGAL NEWS...

By LEO T. PARKER
Legal Editor

Warehouse Limitation Clause Held Valid

Modern higher courts hold that a stipulation in a warehouse receipt which limits a warehouseman's liability to a specified amount, unless the bailor declares a value on the goods of a greater amount and pays added charges, is valid under the Uniform Warehouse Receipts Act.

For example, in *Colgin V. Security Storage and Van Co., Inc.*, 17 So. (2d) 478, La., it was shown that a warehouse receipt contained a clause limiting the liability of the warehouseman to \$50 for any article, piece, or package stored, unless owner declared a value in a greater amount and paid added charges.

A chest having merchandise therein valued at \$600 was lost. Since the

owner did not pay additional charges and declare the value of the chest and its contents the higher court held the warehouseman not liable for more than \$50.

Tractor Owner Declared Independent Contractor

Modern higher courts hold that an employer need not pay taxes for social security; unemployment compensation; or workmen's compensation if such employee is an independent contractor.

The three tests from which it may be determined when an employee is an independent contractor are: (1) when the person employed is free from control or direction over the performance of his service; (2) when such service is outside the usual course of the

business for which such service is performed and (3) when such individual so employed is customarily engaged in an independently established trade, occupation, profession or business.

For example, in *Commercial Motor Freight, Inc. v. Ebright*, 54 N. E. (2d) 297, O., it was shown that the owner of a tractor was under contract to furnish his own tractor, including its fueling and maintenance, to a trucking company to haul trailers of the company to different points. The tractor owner was compensated according to the service rendered. The amount of compensation was determined either by mileage covered or tonnage hauled. The higher court held that the tractor owner is an independent contractor.

Liability for Loss To Stored Goods

Modern higher courts hold that a warehouseman shall be liable for any loss or injury to the goods caused by his failure to exercise such care in regard to them as a reasonably careful owner of similar goods would exercise. He shall not be liable, in the absence of an agreement to the contrary, for any loss or injury to the goods which could not have been avoided by the exercise of ordinary care.

For illustration, in *Vitalich V. Port of Seattle*, 146 Pac. (2d) 819, Wash., it was shown that a warehouse was

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destroyed by fire. The owners of stored goods sued the warehouseman to recover the value of their destroyed goods and contended that the warehouseman was negligent because he permitted a rubbish fire to burn 60 ft. from the warehouse. However, since no testimony was given which proved that this outside fire ignited the warehouse the higher court refused to hold the warehouseman liable.

When Government Appropriates Warehouse

Considerable discussion has arisen regarding "just compensation" which must be paid to a warehouseman whose property is appropriated for government wartime needs. According to arguments presented by the government the measure of compensation in a case of this character is the same whether the floor space taken be occupied or vacant. However, a United States court has held that the inconvenience and cost of removal of the business from the premises appropriated are elements of damages, and compensation.

For example, in *General v. United States*, 140 Fed. (2d) 873, it was shown that suit was commenced by the United States to acquire the temporary use of a part of certain warehouses needed in connection with the establishment by the War Department of a Signal Corps depot.

The owner of the warehouse had installed equipment on the premises

costing approximately \$101,000, and there was located on the premises an inventory of about \$250,000 of merchandise. About one week after the suit was filed, the owner of the warehouse was notified by an agent of the government that he was trespassing upon government property and that if it was not vacated, soldiers would be called in and move the owner of the warehouse out on the street. The business was discontinued, and some five weeks were spent in moving the property and in preparing the space for the government's use. Much of the property could not be moved and was demolished.

The higher court held that the owner of the warehouse was entitled to receive as "just compensation" from the government the actual and necessary expense directly incurred in vacating the warehouse, as against the government contention that such compensation was limited to the fair market rental value of the floor space appropriated. The court said:

Certainly, the cost of preparing the space for the government's use would have been a material item in the amount of rent agreed upon.

National Labor Act Violation Cited

The National Labor Relations Act obligates employers to bargain in good faith with the chosen representative of a majority of his employees with respect to all matters which affect his employees as a class, includ-

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ing wages, hours of employment, and working conditions.

For illustration, in *National Labor Relations Board v. Hill*, 140 Fed. Rep. (2d) 924, it was disclosed that corporation officials refused to contract with a union which won an election among warehouse employees. Also, the president of the corporation refused to consider wage increases or to submit a counter-proposal on the subjects in controversy, and without notice to the union announced a general wage increase.

This court held that the corporation's course of action in dealing with the employees' constituted "unfair practices" within the National Labor Relations Act.

Application Granted By Higher Court

Modern higher courts grant certificates to motor transportation companies if the evidence shows that such proposed operations would not unduly congest the highways, and there is no "common motor carrier" or steam or electric railway which would be affected by such operations.

For example, in *Union v. Public Service Commission*, 13 N. W. (2d) 507, Wis., it was shown that a motor transport company applied for a certificate to extend its operations. The Public Service Commission denied the application but the higher court reversed the verdict and said that the testimony did not show that the extended operations would unduly interfere

with any common carrier, or unduly burden the public highways, and that such service is required by convenience and necessity of the public.

Carrier Contracts Against Negligence

Generally speaking, a contract by a common carrier is void if it attempts to avoid liability for negligence of its employees. However, this rule of law is applicable only to transportation of merchandise and passengers.

For illustration, in *Franklin v. Chesapeake and O. Ry. Co.*, 140 Fed. Rep. 898, it was shown that a warehouseman leased a warehouse from a railway company. The lease contract contained a clause which provided that the warehouseman would not hold the company liable for damages to goods, wares, merchandise, and buildings caused by fire from locomotives "or for damage arising from any other cause whatsoever."

One day employees of the railroad company, while engaged in removing old paint from wooden doors of the warehouse with a blow torch, set the building afire. The warehouseman sued the railway company to recover damages. However, in view of the above mentioned clause in the lease contract, the higher court held the company not liable and said:

A common carrier may contract against ordinary negligence on its part when not acting in the capacity of a common carrier.

When Warehouseman Is Protected

Numerous warehousemen pay insurance premiums and falsely believe that they have protection against suits by injured employees. But all occupations must be listed with the State Compensation Board in order to have adequate protection.

In *Maley v. Martin*, 144 Pac. (2d) 558, it was shown that an employer transferred an employee to run a tractor on a farm. The employee was fatally injured while operating the tractor and his widow sued to recover compensation under the State Workmen's Compensation Law.

The employer's compensation policy did not specifically include protection under the occupation of farm work. Therefore, the higher court refused to allow compensation, but since the employee was not entitled to the benefits of the State Workmen's Compensation Law he may sue the employer for damages.

Brief Review Of Recent Cases

In *State v. Petruskansky*, 36 Atl. (2d) 533, Md., the higher court held that a law prohibiting the storage of alcoholic beverages by licensee, except on premises covered by license or at public or government controlled warehouse having a permit, does not apply to the keeping of alcoholic

beverages by a licensee for purpose other than for sale.

In *Merchants' Warehouse Co. v. Gelder*, 36 Atl. (2d) 444, Pa., the Merchants' Warehouse Co. of Pennsylvania made a claim on the Pennsylvania Liquor Control Board for \$108,607.36 for services incident to the storage and distribution of liquor in the Philadelphia District. The Auditor General and State Treasurer adjusted the claim of the warehouse company against the Liquor Board. The Liquor Board appealed to the higher court which, however, held that the decision of the Auditor General and State Treasurer had the force and effect of a final judgment which cannot be questioned either collaterally or directly in an action brought to recover the amounts thus ascertained to be due.

In *Saraydar v. City of Newark*, 36 Atl. (2d) 289, N. J. the testimony disclosed that a corporation conducts a public automobile garage and service station in what is called in the zoning ordinance a "third residential zone" in which public garages and warehouses were prohibited by an ordinance passed after the corporation began operation of its garage. Later the corporation applied for a permit to convert the garage into a warehouse.

It was contended that since the corporation had prior rights to continue operation of its garage, in view of the fact that its business was established when the zoning ordinance was

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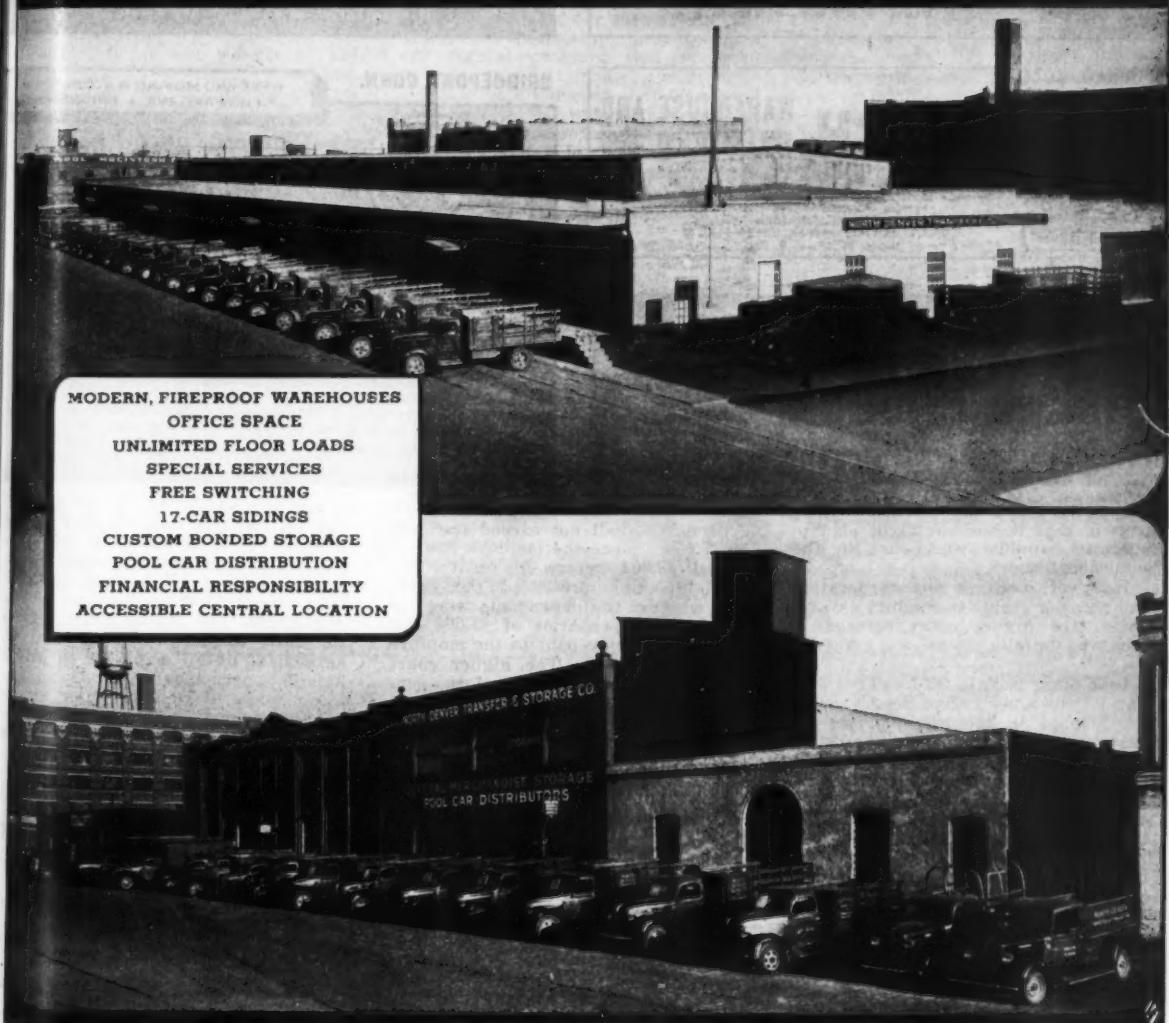
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passed, that it had the right also to operate a public warehouse in the same locality.

However, because the corporation had no prior rights to conduct a warehouse, the higher court refused to issue the permit.

In Wojnar v. Yale, 36 Atl. (2d) 321, Pa., it was shown that the owner of a residence in the heart of an industrial area sued to prevent utilization of a warehouse by reason of the noise or vibration from the warehouse. The higher court refused to stop operation of the warehouse and said that the annoyance or inconvenience which the property owner sustained by reason of the noise or vibration must be regarded as an ordinary incident of residence in the heart of an industrial area.

In Shepler v. Crucible Fuel Co., 140 Fed. Rep. 371, an employee sued to recover back wages under the Fair Labor Standards Act and claimed that his employer was compelled to pay him for time taken to eat his lunch. The higher court said: "The claim for pay covering lunch hours cannot be sustained."

In Maone v. General, 36 Atl. (2d) 195, it was disclosed that an employee became totally disabled, and for 178 weeks he received \$3,204 compensation. After his death his widow filed a claim for herself as widow. The state law provides that the total liability of an employer to an employee or his

dependents shall not exceed the sum of \$3,600. Since the employee had received \$3,204 before his death, the legal question presented the court was whether the dependents were entitled to compensation of \$3,600 less \$3,204 previously paid to the employee before his death. The higher court held that the dependents of the employee were entitled to the full amount of \$3,600.

In Malever v. Kay Co., 25 S. E. (2d)

436, an employee testified that he had received a telegram from the employer offering him "a regular permanent job" at \$50 a week, but that soon after taking the position he was discharged. The higher court refused to allow damages holding that an agreement by an employer to give a "regular permanent job" to an employee is nothing more than an indefinite general employment terminable in good faith at the will either of the employer or employee.

LEGAL

Questions and Answers

... The Legal Editor will answer legal questions on all subjects covered by D and W. Send him your problems, care of this magazine. There will be no charge to subscribers for this service. Publication of inquiries and Mr. Parker's replies give worthwhile information to industry generally

Contract and Mortgage

Question: What is the difference between a conditional contract of sale and a chattel mortgage? Actual Storage Co.

Answer: There is little difference between a conditional contract of sale and a chattel mortgage. Generally, the seller retains title to the goods under a conditional contract of sale and he reserves the right to repossess the goods if the purchaser breaches the contract, as to payments, use of the goods, their loca-

tion and the like. In a chattel mortgage the seller gives the title, technically, to the purchaser and if the latter breaches the contract the seller must ordinarily foreclose the mortgage to obtain possession of the goods.

It is safer and a better deal for the seller to take a conditional contract of sale instead of a mortgage. If the purchaser fails to meet his assumed obligations the seller may repossess the goods without much difficulty. Of course, if the purchaser fulfills his agreement and fully pays for the

goods, and otherwise complies with the contract, there is no advantage in either a conditional contract of sale and a chattel mortgage.

Labor Law

Question: The Fair Labor Standards Act worries us. Suppose that a truck driver hauls only in one state, must we pay him these federal wages? Suppose that he hauls goods from one state into another state, is the driver within the federal law? And suppose that our watchman only guards these trucks, is he within the scope of this federal law? **Burkhardt Transportation**

Answer: If a driver who hauls interstate merchandise is within control of the Public Service Commission, as to wages, he is not subject to the federal wage law, although the Commission does not attempt to control him. However, if the driver hauls in only a single state he is within control of the law, if he takes from depots goods that were shipped interstate. And if the watchman guards trucks used in interstate commerce he is within control of the law, but if he merely guards the premises and merchandise and performs no duty as to interstate commerce he is not within control of the law.

Breach of Contract?

Question: Mr. C. telephoned us requesting that we arrange to move his

household goods. During this conversation we informed him that we would drive to his home and make an estimate only on condition that we be given the job as we would not bid in competition with other movers due to traffic regulations, gasoline rationing, etc. Mr. C. agreed to give us the job. Soon afterward we sent a representative to his residence and later then sent him a written estimate of the cost subject to ICC regulations. In a few days Mr. C. wrote us acknowledging our estimate and stated "accordingly, will you kindly arrange for moving our household goods."

Upon the receipt of this letter from Mr. C. we immediately wrote to him informing him that we would do the job and sent him our formal contract order for his signature. In a few days our formal contract was returned without explanation and unsigned.

We later discovered that an official of a company for which Mr. C. worked influenced him to place the job with another moving company which was done. Can we recover damages from Mr. C. and the company for which he works? **Atlantic Storage and Warehouse, Inc.**

Answer: Many higher court decisions hold that all persons, and corporations, are liable in damages for inducing a party to a valid contract to breach the contract. If you answered Mr. C.'s letter accepting the job, a valid contract was completed. If, however, you had not clearly accepted the "offer" made by Mr. C.

when he asked you if you would "kindly arrange" to move his goods, no valid contract would have existed although you mailed your formal contract for his signature.

It is my opinion that if the employee of the corporation was acting within the scope of his employment, when he induced Mr. C. to breach the contract, the corporation and also the employee are jointly liable in damages to you.

It is well to realize that a valid contract never is completed until the exact offer of one party is unconditionally accepted by the other party.

Case of Forged Order

Question: Our company has been warehousing liquor for various cafes, hotels, etc., who have purchased a quantity of liquor and placed it in storage with us for their account to be withdrawn in small lots as they need it. They store this liquor with us because they are fearful of having it stolen from their own place of business and because of the value of this item at this time.

One of these cafe owners placed 100 cases of liquor in storage with us for his account and we issued a non-negotiable receipt to him to cover it. One day he gave us a release for 25 cases of whiskey which he intended to call for on Thursday. However late Thursday afternoon we were advised by telephone that he could not get in

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that day and would be down on Friday for the order.

It so happened that on Thursday afternoon his order for the 25 cases was prepared, placed on a skid platform and put in a protected location on our docks. The cafe owner's name and address was written on the cases on the side of the load. The 25 cases remained there until Friday morning and about 9:30 A. M. an individual came to our docks with a note reading as follows:

"Please deliver to bearer, Mr. Chester D. Sanders, who is my employe, the 25 cases of Rocking Chair Whiskey you have on order for me."

This note was presented to our

superintendent who assumed that it was sufficient authority to release the 25 cases and that the signature there-to was that of the cafe owner of the whiskey and holder of the non-negotiable warehouse receipt. About two hours later the owner of the whiskey came down to pick up the 25 cases and learned what had happened. Police were notified. Incidentally the note referred to above was supposedly signed by the safe owner but when he came in later on and we showed him the note he proved by signatures in his possession that the signature on the note was not his writing.

It is our opinion that we were a victim of a forgery and that we exercised reasonable care in releasing

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this order. However we are wondering what your frank opinion is and if you think that we have a reasonable chance in court to relieve ourselves of this liability. **Haston Co.**

Answer: Frankly, it is my opinion that you are liable. The fact that you used reasonable care when accepting a forged order is, in the eyes of the courts, legal negligence. You can realize that the owner of the whiskey is in no sense at fault, unless you can prove that he conspired with the one who presented the forged order.

Many higher courts are on record in holding that warehousemen who deliver stored goods on forged orders are fully responsible to the owners of such goods.

Coal Conveyors Can Be Obtained Where Need Is Shown

Although many items of materials handling equipment are difficult to obtain these days, with the restrictions placed on various labor saving devices by the OPA, inquiry among coal shippers and dealers reveals that coal conveyors can be had, without too much red tape, by filling out the necessary forms and presenting them to the local board.

If the prospective purchaser of a coal conveyor can convince his local OPA board that he cannot get along without the purchase of a coal conveyor, and that much labor will be saved by the purchase of such equip-

ment, the board usually loses no time in granting the request.

Such purchases are covered by preference rating AA5 or higher, if the purchaser can get such a rating; it would cover also car unloaders as well as conveyors.

Regional offices of OPA do not have the authority to grant such preference ratings where the amount of the prospective purchase is more than \$2,500, but such field offices can deny purchases of such equipment up to \$100,000 when the facts in the case presented to the local board appear not to make such large purchase of car

unloaders or conveyors absolutely necessary.

It is learned, however, that the OPA expects to modify the rulings on such purchases gradually, so that it behoves prospective purchasers of equipment, who have heretofore had their requests turned down by the local board, to try and try again, as their latest request may fall within the time when the rulings have been eased.

Conveyor and car unloader equipment dealers usually have lists of equipment which can be purchased at the time of inquiry. (Hubel.)

For Shippers' Convenience, States, Cities and Firms are Arranged Alphabetically

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**GENERAL MERCHANDISE
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Pool Car Distribution

Direct Switching Connections into Warehouse
Pennsylvania Railroad

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Member of A. C. W.

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**THE TERMINAL STORAGE COMPANY
OF WASHINGTON**

First, K and L Streets, N. E., Washington 2
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feet, of which 109,000 square feet is of fireproof construction.

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CONSIGN SHIPMENTS VIA B. & O. R. R.

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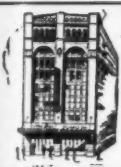
We Reciprocate Shipments

(See Advertisement in Directory Issue, page 183)

Member of N.F.W.A.—W.W.A.

WASHINGTON, D. C.

Established 1901



**UNITED ★ STATES
STORAGE COMPANY**

418 10th St., N.W., Washington 4, D.C.

We Reciprocate Shipments

(See Advertisement in Directory Issue, page 183)

Member of N.F.W.A.—W.W.A.

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EXCLUSIVELY FOR HOUSEHOLD GOODS & OFFICE EQUIPMENT

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Reinforced Concrete—Sprinkler System—A.D.T. Service
Insurance Rate 12 Cents

Rental Compartments—Sub Post Office

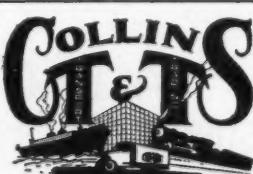
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Merchandise Storage
Pool Car Distribution
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Water and Rail connections
Low Insurance Rate
Household Goods Storage
Moving—Packing—Shipping
Agents Allied Van Lines
National Movers

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Loans on Stored Commodities. Sales Representation. Privately Bonded.
Pool Cars Handled.

Located in heart of Tampa. General merchandise—Cooler and sharp
freezer cold storage. Efficient distribution over entire state. Field
Warehousing.

380,000 Sq. Ft. of Space

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POOLED CAR DISTRIBUTION

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Affiliated with

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"Better Warehouse Service"

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Sprinklered A.D.T. Burglar Protection A.W.A.

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MONROE BONDED WAREHOUSES

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Invested Capital \$325,000

Lowest Warehouse Insurance Rate in Atlanta

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Private Railroad Sidings—Concrete Warehouses

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The Fastest Freight Service Between Atlanta and
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CUSTOMS BONDED AND INSURED

Ask us to quote on all kinds of shipments received from
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Savannah



Savannah's only bonded warehouse
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COMPANY**

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General Storage—Distribution—Reconsigning

Custom House Brokers—Custom Bonded

Regular steamship service from principal

Eastern, Western & Gulf ports—track con-

nections with all rail and steamship lines.

R. B. Young, President

F. J. Robinson, Vice-President

Members—A.W.A.—A.C.W.



From Producer to Consumer—In Plastic

(Continued from page 37)

given to the coating indicate that it will be unnecessary to have separate cartoning of normal parts for peacetime shipping operations. They can be identified readily through the transparent plastic, and the coating will stand up under any anticipated shipping conditions. The only important advantage of cartoning would appear to be, then, the possibility of stacking cartons of products which do not have flat surfaces when coated. However, by the use of suitable bins, pallets or other containers, a method of overcoming this difficulty in warehousing and retailing could readily be found.

Bulk shipment of the coated parts may even be a more important possibility, one that can be considered of significance today because of the great demands on shipping space. Much space will be saved for the same total bulk, by elimination of cartons and by resorting to suitable bulk containers for shipment of parts. This could be an important factor in transport regardless of the shipping medium, though perhaps even more significant where facilities are at their present premium for marine and air shipments.

Packed in Plastic

Recent experiments with the plastic

at Detroit have shown a new potentiality: the development of a formed plastic pack with special advantages in stocking and dispensing. Typically, a dozen bolts were packed in plastic, in such a position that each bolt was entirely coated, and all imbedded side by side in a flat pack much like a pack of cigarettes. This entire pack could be controlled to a given size and shape in actual production, and shipped and stocked in flat stacks the same as material in conventional flat cartons.

A further advantage of this type of pack is that each individual bolt may be broken out of its coating and dispensed separately if desired, while the protective coating remains intact on the remaining bolts. In the case of slow-moving parts, such as spare parts which may be warehoused for years, this feature offers considerable advantages. It allows stocking of an adequate reserve, and passing out of the required amount without decreasing protection for the remainder.

Stripping is Simple

The stripping operation is a very simple one. The plastic may be easily cut by a knife, but the ideal method is almost an incidental by-product of the present method of hand-dipping. The string that is tied to the part for

dipping remains protruding from the coating when it is shipped. When the part is ready for use, it is only necessary to use the string as a cutting medium, and the coating is removed easily.

If the string becomes detached, or if a manufacturer does not wish to leave it attached, the coating can be easily removed by the aid of a sharp stick, the method now recommended for field operations, in place of a knife, which might injure some types of underlying metal surfaces. By heating the product with water at just under the boiling point for about a minute, the plastic is made pliable, and may be readily stripped by hand. Individual methods of stripping suitable to the product and its use may be readily devised by individual manufacturers.

Not Restricted to Metal

This plastic coating is not restricted in use to steel products, nor even to metal. It has been successfully applied to the porcelain surfaces of spark plugs, for instance. I may be adapted to numerous products, and the ingenuity of each manufacturer and package designer may find individual new uses, and ways of enhancing both utility and sales appeal.

For instance, the coating will be especially useful and economical in inter-plant operations. Parts, especially polished or machined surfaces, special castings or relatively fragile surfaces, may be protected for a limited period in transit between plants, or between production and as-

HONOLULU, HAWAII

WHEN SHIPPING GOODS TO HONOLULU

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Modern Concrete Warehouses. Collections promptly remitted.

Correspondence Solicited

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CRAIG WAREHOUSES, INC.

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Merchandise Storage—Distribution—Cartage
Pool Cars Distributed Free R.R. switching

Members: American Warehouse Association, Mdse. Div.;
American Chain of Warehouses, Inc.; Idaho Motor Truck
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R. L. Hesmer, Mgr.
Cairo Phone 1931
Established 1920 J. H. Spaulding, Ass't Mgr.
Mounds Phone 264
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Brick and Concrete building. Warehouse located on Illinois Central.
Served by four large railroads, Federal and Mississippi Valley Barge
Lines. Main Warehouse at Mounds, Illinois. Transit privileges same as
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Most Centrally Located

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Tunnel and Trap Car Service

Liberal Loans Made on Staple Commodities

CROOKS TERMINAL WAREHOUSES

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CHICAGO 38, ILL.

Capacity 1200 Carloads

Insurance Rates as Low as 12c

OPERATING SPACIOUS WATER FRONT WAREHOUSE AT 103RD STREET & CALUMET RIVER
Also operate three modern warehouses in Kansas City and the Overland Terminal Warehouse Company at Los Angeles, California



CHICAGO'S MOST MODERN WAREHOUSES

sembly plants, a type of development likely to become of increasing importance in coming years with the projected general dispersion of industry into smaller producing plants that post-war planners dream of. When the products are to be used or assembled, the plastic may be stripped by mechanical methods for parts used in any volume, and the plastic itself salvaged for economical re-use.

Here is one of the most significant ways in which plastic, which seems destined to be one of the great key post-war industries, is already doing a fighting job in the war. It will be used more widely as more producers become familiar with its properties, and it seems destined to enter into a wide variety of production lines when they turn once more to the products of peace.

Navy Revamps Planes For Air Cargo Work

(Continued from page 64)

quarters and work space reassigned and smaller engines installed.

When the conversion job is completed, the Coronado is reported to be several thousand pounds lighter in weight, with space available to carry 8,600 lb. of cargo and 24 passengers, or 44 passengers with a crew of five.

It was reported that the Naval Air Transport Service is increasingly relying on this type of plane for use as carriers because of their cargo space, fuel capacity, endurance and speed. (Herr)

Technical Advances Hastening Arctic Routes

(Continued from page 64)

plane disasters due to ice. He pointed out that disastrous icing might result

from ice in the engine, and that the second most dangerous situation was ice on propellers.

William S. James, president of the American Society of Automotive Engineers and chief engineer of the Studebaker Corporation, said the conversion of military aircraft and automotive equipment for peacetime uses would be difficult, since military craft had been designed primarily for war purposes.

Taxing of Air Fleet In Home State Upheld

The Supreme Court, in its first decision involving state taxation of interstate air commerce, recently laid down the principle that the home state of an air line has the right to tax all its property which does not remain continuously out of the state during the tax year.

The five-to-four opinion by Justice Frankfurter upheld a personal prop-

erty tax which Minnesota levied in 1939 against the entire fleet of Northwest Airlines, Inc., which has its headquarters in St. Paul.

California Needs More Airports, Experts Say

While Roy I. Hess, civil aeronautics administration engineer, was telling the Sacramento Valley Council of the State Chamber of Commerce that the State of California as a whole will need 150 new airports to take care of the estimated 28,000 planes to be in operation after the war in California, San Francisco's master plan director, L. Deming Tilton, says that this city must have at least three major airports; and another air expert, James B. Rae, told the Aeronautics committee of the Junior Chamber of commerce that San Francisco might easily become the hub for "feeder line service" to and from Northern California cities to connect with transcontinental air service here. Hess thought local governmental subdivisions and the state might obtain financial aid in building the needed 150 more airports from the federal government in connection with a plan now being prepared, similar to the federal highway program. Tilton believed San Francisco's three airports should be on the scale of the proposed \$60,000,000 New York field, and said these three large airports are "absolutely necessary if San Francisco is to hold its place in the future." (Gidlow)

Planned Materials Handling

(Continued from page 42)

counting all the operations involved. Here was a fruitful field for saving time, and for conserving wood, a needed material.

Out of that study came a new and

3. Carloading and unloading was done by industrial fork trucks designed for that purpose; and pallets were transferred to and from freight cars on trailers hauled by industrial



FIG. 3—Fork truck transporting and storing pallet of valves.

astonishingly simple six-step method:

1. Crating was entirely eliminated.
2. Units were fastened on pallets at the supplier's plant, 12 to a single layer, 3 layers high, totalling 36 units, metal strapped for security.

tractors, greatly facilitating work.

4. Shipping and receiving checkers were able to see at a glance 12 units per layer in 3 layers.

5. Pallets were handled at both ends by fork trucks. Units never left

the pallets until they reached the assembly lines.

6. Pallets were tiered 11 ft. high, utilizing an extra 4 or 5 ft. of storage space that had formerly been useless.

Advantages Obvious

Advantages of the new system were obvious. It was much quicker. It was far easier. It saved 19 man-hours on each pallet of 36 units. It showed a tidy \$21.60 lopped off the delivered-to-line cost of each 36 units, through saving on material as well as labor.

Now this is not theory. It is an actual case history. It has been done in many places throughout the country. It typifies what must take place if industry, in the days to come, is to condition itself for the tough competitive battle from which there will be no escape.

An Important Fact

One fact in this experience stands out conspicuously, and will be instantly spotted by executives who are on the alert to make their materials handling methods more efficient. It is this:

A completely mechanized system of handling materials virtually eliminates unskilled labor; and it is a demonstrable fact that unskilled labor adds nothing to a product except cost. That cost item can never be entirely done away with, in all probability; but it can be reduced to where it approaches the vanishing point.

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Established 1894

ANDERSON BROS. STORAGE

Household Goods Storage
3141 N. Sheffield Ave.

Agents for



Phones—Chicago, Wellington 6014 and Evanston, Enterprise 4002
Packing, Crating, Shipping. Facilities for Merchandise and Automobile Storage. Office Removals a Specialty.

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CURRIER-LEE WAREHOUSES, Inc.

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Complete Facilities for Merchandise Storage and Distribution



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Established 1912

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VAN COMPANY

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Fireproof Warehouse and Fleet of Padded Vans for Local and Long Distance Moving.

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Member A. W. A.

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- Modern Buildings.
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- Cooling Rooms
- Direct track connections with C&NW, B&O, Soo Line, PM, CGW, and B&OCT Railroads.
- Write for your copy of "The Way to Distribution."

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Complete Merchandise Storage. Free and Bonded Space. Cooler Space. Private Sidings. Located on Penn., C & NW., Rock Island & P. R. R. Complete Switching. Fleet of Trucks for City Deliveries. Specialize in distributing and warehousing of Nationally Advertised Grocery and Drug Products.

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FACILITIES TO
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Let LASHAM Serve You in the Chicago Area . . .

A State bonded public warehouse, with 25 years of satisfactory service. Supervised by men of long experience.

Modern sprinkler system, A.D.T. fire and burglary alarm. 24-hour watchman service.

All types of merchandise stored and distributed. Specializing in print paper.

Served direct by 4 railroads; Ill. Cent., Mich. Cent., C&NW and CB&Q, with free switch service from all other RR. and boat lines entering Chicago.

Centrally located. Extremely low insurance rate. Write today for full particulars.

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Government Bonded Warehouse
Storage—Packing—Shipping
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Interstate moving of H.H. goods—Nationwide agents and warehouse facilities in all key cities. I.C.C. Permit #42966
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TO TRAFFIC MANAGERS: Our tariff is very low. Wire or write us when transferring personnel.
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344 No. Canal St. (6) C. & N. W. Ry.

THOMSON TERMINALS INC.
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A complete warehouse organization
fully equipped to handle merchandise rapidly and economically

with convenient locations for local trade and excellent transportation facilities for national distribution. Chicago Junction In and Outbound Union Freight Station—direct connections with thirty-eight railroads. Receiving Stations for Railroads, Express and Truck Lines on premises.

Inquiries Invited on Storage, Office and Rental Requirements



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NORTH PIER TERMINAL

Largest warehouse in the Great Central Market territory.

Especially adapted for combination of office and warehouse or factory. • Splendid shipping facilities including all phases of transportation. • Rail, water, tunnel, truck. • Track capacity 150 cars, 2500 feet of dockage for boat unloading. • Direct free tunnel connection all railroads. • Universal station in building for out of town truck shipments. • Low insurance rates. • Heavy floor load. • Our general storage division operating in separate buildings with same facilities. • Storage in-transit, pool car distribution.

Offices are available in new section at 444 Lake Shore Drive • Ample free parking • Good transportation • Close to Loop.

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Merchandise Warehouses close to the Loop. Direct railroad connections. U. S. Customs Bonded and free storage. Low insurance rates.



AMERICAN WAREHOUSEMEN'S ASSOCIATION

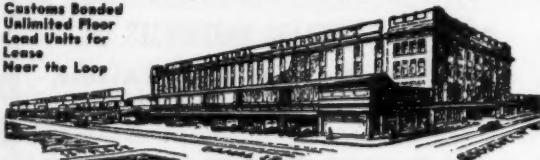
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TERMINAL WAREHOUSE "The Economical Way"

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Year-round candy storage, pool car distribution, negotiable warehouse receipts. Storage in transit. One-half million sq. ft.

Customs Bonded
Unlimited Floor
Load Units for
Lease
Near the Loop



This is important; for it is confidently asserted that American industry's future success will depend on volume production of precision built products, which, in turn, require that we make American labor the most highly skilled in all the world, and that we do it as quickly as possible. That is not merely feasible and desirable, it is necessary!

A Sound Procedure

It is a comparatively easy matter to study the materials handling problem in any plant. Such study, based on getting all the facts, invariably puts a spotlight on wastes of man-hours and money, wastes that can easily be eliminated.

The most important thing, however, is that the subject be faced and dealt with as a part of the larger over-all production problem. The best solution lies not in revising the flow of materials within a plant, nor in buying specific pieces of equipment which seem best adapted to that local need.

Fish Canning Merger

Final draft of new plans to concentrate the canning of salmon on Puget Sound into one plant have been worked out in that region where V. J. Samson, area coordinator of fisheries, has headquarters at Seattle, Wash., and await only the official approval of Harold Ikes, coordinator of fisheries and Secretary of the Interior.

Plans for this merger of cannery interests provide for use of the Ana-

The study only begins at the plant. It should proceed from there all the way back to those plants where materials originate, in order that the movement and processing of materials may be visualized as a complete phase of planned production, so that all parts of it may be coordinated into a complete, simple, intelligently planned, fully integrated system.

Future Architecture

It is then comparatively simple to design equipment suited to the needs of a particular system. Indeed it may not be far fetched to predict that industrial architecture in the future will have to be aware of materials handling, will have to revise ceiling heights, and plan how to make effective, economical use of the "air rights" existing indoors.

This emphasizes again that planned materials handling goes hand in hand with planned production, is, in fact, a vital phase of that larger problem.

cortes, Wash., cannery of the Fishermen's Packing Corp. there, with this one plant doing the work of nine large canneries, a merger that will mean a manpower saving of 500 workers. It will release 27 cannery tenders for other operations. The distribution of the forthcoming pack of canned salmon would be on the basis of the five-year average production of each of the nine salmon canneries participating in the consolidation program.

CHICAGO, ILL.

FIREPROOF CONSTRUCTION

Household Goods Storage Warehouse

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5822-5824 N. WESTERN AVE.
CHICAGO 46, ILL.

Commercial Hauling & Moving in Chicago
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Fully sprinklered warehouse building for merchandise storage exclusively.
Centrally located—only 12 minutes from the loop.
Complete warehouse service with personal supervision. Pool Car Distribution.

SYKES TERMINAL WAREHOUSE
929 West 19th Street
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Merchandise Storage and Distributors

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Estd. 1886

MAIN OFFICE—225 E. ILLINOIS ST., CHICAGO

U. S. Internal Revenue Bonded Warehouse

U. S. Customs Bonded Warehouse

A.D.T. Service

ADVANCES MADE

Our ample financial resources enable you to negotiate loans right in our office.

Prompt Delivery and Best of Service.



AMERICAN WAREHOUSEMEN'S ASSOCIATION

Too Many Conventions, Johnson Declares

Although a number of organizations, large and small, have canceled conventions in compliance with the request of the Government, many others are continuing to hold "conventions as usual," Col. J. Monroe Johnson, director, Office of Defense Transportation, stated recently.

"We are obliged to report that even with the prospect of invasion and the resulting need to keep transportation lines clear, unnecessary trade shows and conventions continue to be planned," Colonel Johnson said. "The governing officials of these organizations obviously have neglected to take into consideration the harm these conventions inflict on war-transportation efficiency."

New Company

Fishery Products, Inc., has been incorporated to deal in fish from Newfoundland distributed to the wholesale trade throughout the country, with offices at 10 High St., Boston. Arthur H. Monroe, St. Johns, Newfoundland, is president; James P. Stearns, vice-president and treasurer, and Gordon T. Canning, vice-president in charge of sales. Formerly Mr. Stearns was assistant vice-president and Mr. Canning was sales manager of the Atlantic Coast Fisheries Co., Fisheries Division, Boston. (Wellington.)

TARIFF...a word from the 8th century

LONG before the advent of the Moors in Spain, the Romans colonized a small seaport on the west coast of Spain in what is now the Province of Cadiz, at the extreme south point of the peninsula, not far from Gibraltar. Strabo, the Greek geographer, born 63 B.C., described the place as situated between Gades now Cadiz, and Belon, and called it Julia Jozia. Later the Goths drove out the Romans from southern Spain and in the 8th century the Moors took possession and subsequently the Roman name of Julia Jozia was changed to Tarifa, which means in Spanish, price list; fare; rate; schedule of charges.

In French it is spelled *tarif* meaning customs; rate of prices; rate. In Italian it is *tarifa*, meaning information; price list; price, and we find it in Arabic spelled *tarif* in the singular and *taarif* in the plural, with several meanings similar to that given it by the Spanish who, according to historians, owe much of their finer achievements—literary, scientific, artistic, social or political, to the Arabs who occupied the whole area of Tunisia, Algeria, and Morocco, which the Romans had civilized, and who crossed from Africa to Spain as Moors. In

By JOHN MICHAEL DESCH
Pacific Southwest Freight Tariff Bureau

• • •

the English language we find the word as early as 1591 used by the military as tables or *tariffas* as a record of soldiers about to enter the ranks.

One might wonder at the purpose of the Moors when they changed the name of the little seaport to Tarifa, which to-day is called the quaintest town left in the world, with its narrow, crooked streets, still surrounded by its old Moorish walls, faced by a rocky, fortified island connected by a causeway.

Before the war no sightseeing trip to western Spain was complete without visiting the City of Cadiz and then taking the coast road to Tarifa, the tip of Spain, where for several miles the coast is dotted with stone watch towers constructed by the Moors for the purpose of keeping in touch with ships passing in and out of the Straits of Gibraltar. The ancient town of Julia Jozia was the headquarters from which this activity

was directed and it was fitting and proper that the Moors should change the name to Tarifa, from which point the Moorish pirates set out in fast boats to board passing vessels for the purpose of exacting from them a tribute, a levying or collection, without benefit of law.

It is even assumed by some that the crafty Moors had a price list or schedule of charges and applied the base rate to cargoes of minor value and went into the higher rate brackets where the cargo was of exceptional value.

The profitable but nefarious trade of the Moors lasted for some time, as they held undisputed sovereignty over the approaches to and from the Mediterranean. In 1292 Tarifa was taken from the Moors by Sancho IV of Castile and in defense of Tarifa, Alfonso XI gained the battle of Salado, a short distance to the westward, in 1340. In 1492 Spain was free of the Moors. To the Spanish was left the quaint seaport of Tarifa and a broader meaning of the word itself from which of course we derive *tariff*, a word that means so much to traffic managers.

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Air Cargo Equipment . . .

(Continued from page 62)

used as well as whatever arrangements for moving and securing of cargo may be developed. It does not appear practicable to tie each unit of cargo down. If the cargo is restrained in a relatively small compartment or bin the tie-down becomes unnecessary. Stability control of the cargo must be maintained to prevent damage both to the plane and crew and to other cargo aboard.

The use of bins and racks of a semi-permanent nature which can be quickly removed if necessary for the handling of unusual types of business is a distinct possibility. As yet no entirely satisfactory devices have been provided for the stowing and securing of variegated sizes and types of cargo which will probably be handled. When heavy cargo can be placed on the floor in a level position and other lighter cargo used to "top out" the load the problem will be solved, many operators believe.

Military Carriers

Immediately after the war, equipment now being operated by the airlines on military service contracts will be available for domestic use as passengers and cargo carriers. In addition, certain types of cargo carriers originally designed as domestic car-

riers, but later shifted by the war emergency to the military transport services are being manufactured in such quantities that the immediate domestic need for strictly cargo planes can be met within a few weeks after the cancellation of military contracts.

Although the return to the airlines of pre-war type passenger planes, suitable to conversion as cargo carriers, and the availability of military version cargo carriers will take care of immediate demands, the airlines will join with the airplane manufacturers in setting up requirements for plane designs which will assist in stimulating future cargo traffic development.

The technological aspect of air cargo equipment is of the utmost importance as it will determine the conditions and limitations under which air commerce will develop. Extremely large airplanes capable of carrying payloads of 60,000 lb. and over are not being seriously considered for domestic operation at any time in the near future. Such planes probably will be pioneered in overseas operation where frequency of schedule does not outweigh the advantage of the lower operating cost of the large planes. Also, landplanes capable of carrying such payloads require highly improved runways with special foun-

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dations and surfaces to bear the stresses of the wheel loads placed on them in addition to longer runways than required by the smaller planes.

Payload and Fuel

With present equipment, the effect of increasing the distances between stops is to increase the ton-mile cost of cargo carried. This condition is brought about by the need of carrying additional fuel for longer ranges, thus reducing the payload by the weight of the added fuel. As the size of the airplane is increased, this increase in cost with range has less effect. The reason for the smaller increase is the structural efficiencies possible with larger sizes. Less weight is required to provide necessary strength which results in an increasing percentage of useful load of gross weight as size increases.

At the same time, aerodynamic efficiencies reduce the wind drag thus requiring less fuel for given gross weights. The net result is that the weight of the fuel added for increase in range becomes a smaller percentage of the useful load which grants a smaller percentage of decrease in payload with increase in range. With a larger payload over which to distribute costs, the per ton-mile increase in cost becomes smaller. The larger planes also have the advantage of granting more cubic space over which to distribute the weight to be carried. A large space to density ratio is to be desired as it is

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For long ranges the four-engine planes provide larger payloads and have high power loadings. The ceiling obtainable with one engine inoperative will be an additional measure of the power installation for mountainous terrain. For very high terrain four-engine equipment will be selected in order to secure a higher one-engine-inoperative ceiling. Safety is the first consideration. The horsepower selected will be the minimum

rated horsepower sufficient to meet the requirements of terrain and safety.

Military Experience

The practice of the military services in loading cargo planes in excess of the limits prescribed by the Civil Aeronautics Board for the type of planes being used has proved quite satisfactory. This situation may develop sufficient data for the Board to revise upward gross weight limitations. If so, this will have a beneficial effect on cargo operation for the payload of the planes can be increased by the amount of the increase allowable gross weight. Elimination of precision weight control in the loading and unloading of cargo has not yet been accomplished but is highly desired by cargo carriers, if it can be eliminated by some means that will not result in a sacrifice of payload.

Physical weighing of planes loaded, with automatic computation of the location of the center of gravity on scale readings, will be a major step forward in eliminating the time loss now present with the use of loading charts and mechanical load adjusters. Such equipment may be too expensive to install in remote places but at key points with sufficient cargo volume such installations appear practicable.

Weight Control

The setting up of central engineering offices to maintain complete and

effective control of the weight and balance of aircraft, and to conduct research on weight control appears to have considerable merit. The benefits of careful attention to weight and balance control are improved safety, greater load carrying capacity, reduced manufacturing costs, lower operating costs, and smaller investment costs.

Better stability and more controllability give improved safety and at the same time result in higher efficiency. Greater speed and range, larger loads, and less ground time are achieved with efficient control of weight. Manufacturers can reduce manufacturing costs by reducing the total amount of material used in construction and with simplifications, man-hour and overhead costs. This will result in lower investment costs for the airplane with consequent savings in interest and reduced taxes. With improved safety, insurance savings would naturally follow. By bringing about greater operating efficiency, lower fuel and oil consumption will bring about lower operating costs for the airlines.

Cost of Operations

Direct cost per plane-mile of operation is a very valuable measure of the efficiency of a cargo plane, but a better value is the cost per ton-mile. This latter value depends not only upon the plane-mile cost but upon the payload carried as well, which gives a more pertinent value upon which to base cost of operation.

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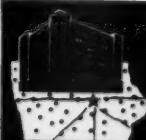
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A further refinement would be to set up a measure of the number of ton-miles carried per hour. By relating this measure to the per ton-mile cost a very valuable index of the efficiency of the equipment being used for the given traffic volume would be developed. A lowering of such an index value would indicate a need either for schedule or equipment adjustment.

Other factors being equal it is axiomatic that the particular equipment granting the smallest per ton-mile cost for a given schedule be selected. With increase in traffic volume there is inherent danger that the necessity for sorting and interchange of cargo will slow down traffic movement. In such instances equipment selection suited to the particular operation will have a primary influence in eliminating such danger.

Equipment utilization and fuel costs are large proportions of the total cost of operating flight equipment. If through strategic scheduling and commodity rates a high equipment utilization can be secured, the per ton-mile costs can be substantially reduced. Fuel costs are relatively stable and fixed costs, but can be reduced by adopting minimum rated engine powers which still produce satisfactory block-to-block speeds.

Reduction of Rates

Direct flying costs can be estimated closely for any given design, but adequate data do not exist at present

upon which to base estimates of cargo rates to be available to shippers. The prevailing opinion is that present rates can be reduced. The amount and extent of such reduction cannot be determined until more experience is obtained with respect to the character, volume, and traffic dispersion of the cargo to be carried.

Wartime cargo operation has given much valuable experience in cargo handling and by conditioning present experience with pre-war data, certain reasonable forecasts can be made. With present equipment, the most economical distance between stops is 250 to 350 miles. Increasing the number of stops over a given distance increases the cost of operation to the extent of the time added to service the added stops. This condition holds true for varying ranges for varying designs. A maximum range is more quickly reached with smaller airplanes because the added fuel needed to secure the longer range decreases the payload and results in a higher per ton-mile cost. If the ranges are too short the time lost in taxiing, take-off, and climb reduces the block-to-block speed and increases the cost.

Flight Range

Different types of equipment will be used dependent upon the character of service and territory served. Feeder type service will need to have stops every 50 to 100 miles, continental short-haul service from 200 to 500 miles, and continental long-haul ser-

vice from 300 to 1,000 miles. Intercontinental service will have stops scheduled at varying distances of 500 to 2,000 miles. These variances in distances between stops will result in different types of planes being selected to serve the particular type of operation being made.

At low rated horsepower, a small increase in power for a given range results in a relatively large increase in speed at little increase in cost. At high rated horsepower, a small increase in power gives only a relatively small increase in speed but results in a large increase in cost. This condition argues in favor of low power installations.

Flight Speed

The speed at which cargo flights will be made will be little different from those of passenger service. Cargo will not have to move in the most expeditious manner possible so that economy of operation will have a tendency to keep flight speeds at or below 200 m.p.h. Block-to-block speed and time of departure to time of delivery are better measures of speed than flight speed alone. A few minutes saved on the ground will be of the same value as several miles per hour increase in flight speed.

After a relatively large size is reached further increase in size does not tend to decrease materially the per ton-mile cost of operation. The point of optimum weight, structural, and aerodynamic efficiencies with in-

crease in size is passed quickly beyond gross weights of 70,000 lb. and more. Airplanes larger than this do not offer an advantage other than the ability to carry large tonnage. Such a condition limits the size of cargo planes because frequency and flexibility of schedules has a very definite advantage. An absolute volume of traffic will have to be clearly demonstrated before very large planes are purchased. It is considered better to be on the low side of optimum size than the high side.

Equipment Competition

In the past, improvements in design have occasioned a rapid replacement of flight equipment rather than actual wear and tear. Competition among air carriers for passenger business has tended to cause obsolescence of equipment at a faster rate than true depreciation. Economy of operation has had some effect but in the case of cargo the flight equipment used will not cause the shipper such concern if he can be assured of completed schedules. Old designs will be replaced by new designs prior to actual depreciation only when the economy of the new design is greater than the combined rate of depreciation of the old plus the new.

Equipment competition is likely to be with surface carriers and not with other air carriers. If airline operators place a premium upon competition among themselves each will contribute to the others disadvantage with consequent financial loss for all.

In the early post-war period very few strictly cargo planes will be placed in immediate operation. The trend will be to use combination passenger and cargo planes to pioneer the development of cargo traffic. In this manner, present passenger business can be used to develop cargo business by spreading the cost of service over both operations. The planes used will be convertible either to all-passenger or all-cargo, or combination cargo and passenger planes. As cargo volume is developed, solid-cargo planes will be placed in operation with larger planes replacing smaller planes until the traffic potential is served.

motor transportation after they leave the airplane.

Is it too much to expect that this practice might prevail in commercial air cargo in the future?

The mere fact that motor vehicles are used in these operations to carry men and materials to the airport indicates definitely the connection between motor highway transportation and airplane travel which we have termed "motairhandling." (M. W. P.)

Predicts Diesel Engines For Post-War Planes

Commercial airlines that will burn furnace oil costing only 6 cents a gallon instead of high octane gasoline, were predicted by Gordon Lefebvre, president, Cooper - Bessemer Corp., who said that within the next five years all commercial aircraft engines will be Diesels because of the tremendous interest in the Diesel principle of operation.

"In addition to important fuel economies," Mr. Lefebvre said, "the Diesel aircraft will have the inherent advantages of the non-explosive quality of its fuel, plus the absence of electrical interference, one of the most common hazards of air travel."

Atlanta Plant

Owens-Illinois Glass Co., Toledo, O., has purchased an 80-acre plant site south of Atlanta, Ga., where a plant, when completed, will employ 700 persons. (Kline.)

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Agent for Allied Van Lines, Inc.
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For Details See Directory Issue
Distribution and Warehousing

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FOR THE HANDLING OF YOUR SHIPMENTS.

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Vans Coast to Coast Canada and Mexico

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Operating Terminal Warehouses on Tracks of

The Baltimore & Ohio Railroad Co.

A.D.T. Private Watchman, Sprinkler

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Agents: Allied Van Lines . . . Member N. F. W. A.

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The Most Complete Moving and Storage Organization in Baltimore.
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Operating four Modern Warehouses on tracks of
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Established 1856

PACKING
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MOVING
STORING
SHIPPING

Member May W. A.

3175 Washington St.

Bridge Crane

(Continued from page 44)

case it is then termed an "underslung" bridge crane. The span of the bridge is governed by the load that must be handled and the strength of the supporting columns. Spans of 100 ft. are not considered excessive. Cranes have been built in capacities up to as high as 400 tons, with bridge travel speeds as much as 400 ft. or more per minute. Care should be taken to see that the crane is designed for the purpose for which it is intended.

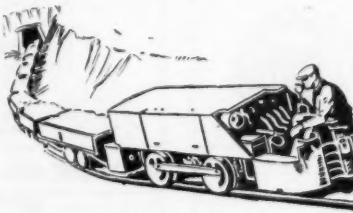
Application—Bridge cranes are generally used in industrial plants, in such departments as machine shops, foundries, large assembly rooms. They are also installed in power plants for raising and lowering heavy electrical equipment. They can be placed over outside storage areas for lifting and shifting within fixed limits, for the unloading of cars. It is important to have the right accessories under the hook to handle various types of materials properly.

Industrial Railroad

Definition—A system of railroad tracks and equipment other than standard gauge such as used by common carriers.

Description—For many years, industrial type railroads have been in service in a great many different industries. The types of locomotives and

cars available are very numerous. There are electric locomotives, compressed air locomotives, gasoline locomotives, gas-electric locomotives, storage battery locomotives, and electric units that pick up power from third rails or overhead trolley wires. Cars have been designed to handle special types of products and, in some instances, the cars are an integral part



Mine Train

of the locomotive unit. The industrial trackage ranges from 18 in. gauge to 56 1/2 in. gauge, and with various weights of track sections, depending upon the service required. The track system can consist of automatic switches or hand operated switches, turntables, cross-overs, and all of the track accessories found on regular railroad systems. In some instances, people confuse standard gauge railroads operating within a plant, with industrial railroad systems, but the difference is in the track gauge.

Application—Industrial railroads are used extensively in mines, quarries, on construction operations in

chemical plants, steel foundries, coke plants, wood creosoting plants, foundries, sugar cane plantations, banana plantations etc. Sometimes they are only a small transfer car while in other cases they embrace extensive systems.

Most Industrial Fires Held Preventable

There is no evidence that recent large industrial fires are the result of activity, organized or otherwise, against the war effort. Col. Carl G. Richmond, War Dept., Washington, D. C., stated in an address at the Midwest Safety Congress in Chicago recently.

One great lesson from recent major industrial fires, Col. Richmond asserted, is that these fires come from preventable causes and that similar fires can be prevented entirely or greatly reduced in extent "through the application of sound fire prevention principles, which are simply plain common sense, often easier to understand after the fire than before it."

"The basic principles of fire prevention are still sound," he said, "but their application is not always simple as new conditions develop that are brought on by the demands of all-out production efforts. We have new and enormous fire areas, new processes with new hazards that require continuing research and development of the exact science of industrial fire protection engineering. (Slawson.)

For Shippers' Convenience, States, Cities and Firms are Arranged Alphabetically

"How Much Protection Should a Shipping Case Furnish to Its Contents?"

IF shippers could overcome the universal human habit of "seeing everything but the obvious"; if they would "correct those little things which are so noticeable and so easily corrected," loss and damage claims to freight shipments incurred in transit could be reduced 50 per cent, A. L. Green, freight claims division, Assn. of American Railroads, declared at the spring meeting of the Midwest Shippers Advisory Board in Chicago.

Wherever freight is handled, in factory, on freight platform or in receiving department, declared Mr. Green, "it will pay to look into the effect of habit, our 'fixed method' of doing things, upon loss and damage."

"Often, through honest ignorance," he continued, "a man has acquired an unsafe habit of handling or storing certain freight. When that habit is spotted and corrected, the risk to future similar shipments is reduced. One of the truths so often lost sight of is that 'safe habits are as easy to make and as hard to break as unsafe habits.'

Cases and Cartons

Discussing shipping containers, he proposed that instead of defining how and of what material a carton should

be constructed, the freight classification should express in simple terms "how much protection a shipping case should furnish to its contents."

"How and of what material the carton is made should be of no concern to the shipper," he said. "What he wants to know is how much rough handling the carton will take; how much load it will support in warehouse truck or car. The proposal gives him the answer."

"When, through the Freight Classification we go into minute details as to how the fibreboard shall be made and how much it shall weigh per 1000 sq. ft.," he continued, "it is true we are giving the box man a pattern, but there are so many ways in which good material can be fashioned into a poor box that the buyer can seldom be sure he is getting all the service he pays for."

No change in Rule 41 of the Freight Classification is suggested for the immediate future, Mr. Green stated. He expressed the hope, however, that "at the right time" consideration should be given "to revising the rule to provide a standard of performance as determined by standardized revolving drum and crush resistance tests."

One way to give a shipment a good

start, Mr. Green suggested, is "to buy containers especially engineered to your product." "Buy containers," he said, "that have built into them a surplus factor of protection." Illustrating what can be accomplished when the laboratory technician goes to work on a shipping case, he told of studies made to improve egg shipping cases.

Egg Containers

Contrary to the experience of generations, he said, the railroads in the last year or two have had considerable trouble getting eggs through without damage.

"The fibre box entered a new field, in fact almost took it over," he said. "Box makers, as a whole, had had little experience with packaging eggs, so it is small wonder that they didn't hit it right at the first attempt. Laboratory testing of some 17 different designs for fibre boxes for eggs disclosed a wide range in the ability of these boxes to withstand the stresses set up in carload transportation.

"Generally speaking, all had ample stacking strength for storage. But most, if not all of the boxes were entirely too weak from end to end, where they must have strength and

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Pool Car Distribution

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Hoosac Stores, Hoosac Docks, Charlestown, Mass.
Warren Bridge Warehouse, Charlestown, Mass.

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A. WALTER LARKIN
Treas. & Mgr.

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Established 1894
General Merchandise Warehouses
UNION WHARF, BOSTON 13
Connecting all railroads via
Union Freight Railroad Co. A.D.T. Service
Motor Truck Service
Member of Mass. W. A.

BOSTON 13, MASS.

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Specially equipped to handle bale and bag commodities. Private railroad siding connecting all railroads. Free and bonded storage.

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D and W. July, 1944—111

MASSACHUSETTS

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N. Y., N. H. & H. R.R.
E. Street Stores
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D. S. WOODBERRY CO.
P. O. BOX 122, NORTH POSTAL STATION, BOSTON
Largest Pool Car Distribution Specialists for New England
TRUCKING & STORAGE
BOSTON & MAINE R. R. SIDING

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REMY MOVING COMPANY
310 THIRD STREET • FALL RIVER

NORTH AMERICAN VAN LINES, INC.
Long Distance Moving

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SAFETY • SPEED • ECONOMY

LYNN, MASS.

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The only Fireproof warehouses on the North Shore complete with every facility and private sidings for the storage and distribution of merchandise, automobiles and household goods. 100,000 sq. feet of space.

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rigidity to take switching shocks. As a result of these tests a box was designed to resist an end-to-end crushing force of 1400 lb., compared with an average resistance of 600 lb. of the boxes tested. But, of most interest to shippers and carriers, the specification for this new egg case will, for the first time, introduce a minimum compression test which every fibre box for eggs must meet to be acceptable.

Value of Four Nails

"This same investigation also developed that, by driving 6 per cent more nails in the wooden egg case, that is, by adding four nails to the 65 nails required by standard practice, the rigidity of this case, its resistance to crushing forces in a freight car, was increased on the average about 65 per cent. Of course this means that the factor of safety was increased in far greater proportion than as indicated by the 65 per cent greater stiffness brought about by these extra four nails. In short, for transportation, those four nails in the cover made the box about twice as protective."

Of the many causes for loss and damage claims Green listed four as needing most attention by shipper. In their order of importance they are as follows:

Loading Methods

1. Loading methods. In a high percentage of damage to carload freight

in packages, he said, it is found that either the recommended methods of stowage and bracing were not followed to the letter, or the cases were not tightly stowed.

"When any appreciable free space or slack is present in the load," he explained, "it can shift in switching and ordinary train operations. The one lesson that remains to be learned by many shippers is, that the only way to build into the load an ample factor of safety is to stow the packages as compactly as possible and to fill all open space with buffering or bracing tightly, so load shift can be held to an absolute minimum."

Fibre Boxes

2. Fibre boxes, in very many instances, are not stitched, flaps glued or taped in accordance with standard practice. Internal packing often is far short of what it should be, which accounts for much concealed damage. Boxes containing articles of a weight density of more than 100 lb. per cu. ft., he said, should be reinforced with metal strapping, round or flat, applied according to manufacturer's instructions.

Labels and Stencils

3. Errors in addressing freight and failure to remove old marks account for the disappearance of many thousands of packages. Legible label or stencil markings are preferred, although plain brush marking is good

practice. "It helps a lot, as abundant experience has shown," he remarked, "to enclose in the package—especially secondhand packages—a memo giving shipper's and consignee's names and addresses and date shipped."

4. Millions of secondhand packages are being used. When unintelligently selected and not securely closed by tape or other means, damage can be expected. He urged that shippers obtain copies of the folder "Using Secondhand Containers To Best Advantage," distributed by the Advisory Boards, freight agents and others (Slawson)

New Dehydration Process for Fish

Capt. Victor M. David, Vancouver, B. C., has invented a new dehydrating process which, it is said, will reduce 1,000 tons of fish to 130 tons of solid pre-cooked and boxed bone-dry food without injury or loss of any of the vitamins, proteins and minerals. He believes he has solved the problem of feeding the millions in the occupied countries of Europe.

The importance of the new dehydrating process may best be realized when one considers that 1,000 tons of fresh or frozen fish shipped across the continent require 40 refrigerator cars. The same amount in food values dehydrated and boxed under the recently developed process, it is claimed, will require only two ordinary box cars for shipment. (Haskell)

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Large modern warehouses centrally located in wholesale district—especially constructed for storage, handling and distribution of general merchandise. Storage and Industrial Space for Rent or Lease Furniture, Storage, Packing and Shipping Member of AWA—NFWA—AVL—American Chain of Wholes.



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Fireproof Storage Warehouses
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U. S. Bonded Warehouses, Pool Car Distribution, Household and
Merchandise facilities, Private Siding. Our fleet covers Connecticut
and Massachusetts daily. Warehouses at Bridgeport and Hartford, Conn.
Members: NFWA—AWA—ACW—AVL Agents

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Atlantic States Warehouse
and Cold Storage
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General Merchandise and Household Goods Storage
Cold Storage for Butter, Eggs, Poultry, Cheese, Meats
and Citrus Fruits

B. & A. Sidings and N. Y., N. H. & H. R. R. and
B. & M. R. R.

Member
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Daily Trucking Service to
suburbs and towns within
a radius of fifty miles.

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HOUSEHOLD GOODS STORAGE, Packing,
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Fleet of Motor Trucks



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NORTH AMERICAN
VAN LINES, INC.
Long Distance Moving

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PRIVATE POLICE PROTECTION • MOTORPOWER HANDLING EQUIPMENT

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MOVING—PACKING—SHIPPING
STORAGE—PRIVATE SIDING

8035 Woodward Ave., Detroit, Mich.

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Located in the heart of the wholesale and jobbing district, within a half-mile of all freight terminals. Modern buildings, lowest insurance rate in city.

Warehouse & Terminals Corporation

Wyoming and Brandt Avenues

Modern concrete buildings, fully sprinklered, serving the west side of Detroit and the city of Dearborn. Specializing in heavy and light package merchandise and liquid commodities in bulk. Connected directly with every railroad entering the city.

Central Detroit Warehouse Co.

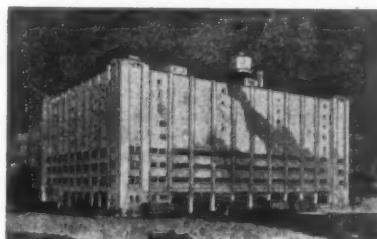
Fort and Tenth Streets, Detroit 16, Mich.

DETROIT, MICH.

GRAND TRUNK WAREHOUSE
& COLD STORAGE COMPANY

DETROIT 11, MICH.

Ferry Ave., E. and Grand Trunk Railway



Local, regional and storage-in-transit service, offering every facility known to modern distribution.

New
Ultra-Modern
Plant

Trunk Line
Terminal
Complete Service

Continent-wide Connections



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Wide Wage Differentials Cited In Transportation Industry

THE transportation Board of Investigation and Research recently transmitted to the President and to Congress a report on its labor study entitled "Hourly Remuneration Rates by Occupations in the Transportation Industry."

The study finds that the average hourly remuneration rate paid to employees by any form of transport varies between the eastern, western, and southern districts. But, the report emphasizes, these territorial differences are unlike from one kind of carrier to another, with the effect that the competitive relationships between the various kinds of carriers in any one district are not the same as those in the other districts.

The report shows, for example, that in the South the bus industry had an average hourly labor cost which was 16 per cent less than that of the rail-

road in the South, but in the West the bus industry had an average hourly labor cost 4 per cent higher than that of the railroad.

As a further example of the report's findings, the truck industry's average hourly labor cost in the East was 12 per cent lower than the railroad's. In the South, on the other hand, the hourly labor cost of the truck industry was 27 per cent below the railroad's.

Wage rate variations, according to the report, are caused principally by: (1) differences in union strength, (2) application of standardized piece rates to operating conditions which are not geographically uniform, and (3) insufficient knowledge of job values.

The Board recommends that the Federal Transportation Authority,

proposed in its recent preliminary report on "Relative Economy and Fitness of the Carriers," be directed to conduct, in cooperation with the Department of Labor, a job evaluation study covering the entire interstate for-hire transportation industry. The Authority would also be instructed to prepare a standard labor information report, returnable annually by the carriers, designed to develop comparable data concerning wages, hours, working conditions, and labor costs in the transportation industry.

Information developed by such research, the report says, would be especially pertinent in the consideration of freight-rate regulation, mobility of labor and employee welfare, and federal labor policy.

Labor, according to the report, is the largest single element of cost in transportation, but "the significance of the wage rate as one of the determinants of labor cost does not always seem to be fully appreciated." Because labor cost represents the largest transportation expenditure "it seems altogether certain that the inequality of competitive opportunity

DETROIT, MICH.

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inherent in unequal wage levels for equal job levels is potentially greater than inequalities which may exist by reason of subsidy and tax-burden differences."

It seems probable "that to an economically unjustifiable extent the various kinds of transport agencies are competing on the basis of their abilities to bargain with unions rather than on the basis of their techniques of transporting goods and persons."

The report says that the method used for comparing district variations in the differences between either the bus or the truck and the railroad average hourly remuneration rates does not require consideration of territorial differences in the cost of living or employee efficiency. In either of these respects in a given area, one group of employees or one kind of transport has little or no advantage over the others.

In discussing the territorial differences between the average remuneration rate levels of the transport industries the report directs attention to the "always present grave danger that some or all of the effect of the

unlike territorial differences in the wage levels of the various kinds of transport takes the form of uneconomic extension of one form of transportation at the expense of uneconomic restriction of other forms of transport and of transportation in general as opposed to production."

The Board, consisting of Chairman Robert E. Webb of Kentucky and

C. E. Childe of Nebraska, conducted the study pursuant to provisions of the Transportation Act of 1940 calling for investigation of the relative economy and fitness of the various kinds of transport. Dr. Dan H. Mater, chief of the Board's Labor Studies Section, supervised the study and the preparation of the report. (Kruckman.)

California to Grow Coriander Seed

Before the war, drug manufacturers brought most, if not all, of their coriander seed from Morocco. Coriander is used in making antiseptics, flavorings and drug products. In April, the first experimental plantings of Moroccan coriander were made in California by Dr. Monroe C. Kidder, who heads the drug and oil plant branch of the State Department of Education.

Dr. Kidder says that California is also experimenting with the raising of

pyrethrum (potent insecticide, formerly brought from Japan); peppermint; cascara; Spanish broom; and licorice. In King County alone it is planned to raise 300,000 lb. of licorice root this summer.

Dr. Kidder says licorice can become a commercial crop in California, probably at a price of 5c a lb. for dried root. This is part of a program to make the U. S. self-sufficient in production of raw materials for drugs formerly imported. (Gidlow.)

For Shippers' Convenience, States, Cities and Firms are Arranged Alphabetically

D and W, July, 1944—115

Development of U.S. Trucking Industry Over Past 20 Years Officially Recorded

20 YEARS PROGRESS IN COMMERCIAL MOTOR VEHICLES (1921-1942). By Athel F. Denham. 247 pp. Illustrated. Distributed by Military Vehicles Division, Automotive Council for War Production, Washington, D. C.

The immense field covered in this comprehensive report of technological developments in the commercial motor vehicle industry during the past 20 years may be appreciated when it is understood that it contains chapters, among others, on such subjects as the following: demand for specialized design; specialization and the war effort; effects of legal restrictions on sizes, weights, etc.; economics of truck design; reduction of operating expenses; durability; performance; handling ease; driver comfort; safety; history of the bus and trailer industry; the future of trucks, etc., in addition to numerous charts, tables, illustrations and statistics dealing with factory sales, production, fuel consumption and various other matters.

As this is understood to be the first time such an extensive study on the technological development, improvements and use of commercial motor vehicles has been compiled under one cover, it should be invaluable to anybody whose work deals with automotive equipment and motor transport.

The author for many years was Detroit technical editor of a group of automotive business papers, including "Automotive Industries" and "Commercial Car Journal."

In his introduction, Mr. Denham stresses the fact that "the railroads, owning 94,000 trucks, are operating almost exactly ten times the number of trucks in inter-city service than they did in 1930, while for every four freight cars they had in World War I they have less than three today."

In his chapter dealing with "the future," Mr. Denham states that the lines of development of postwar trucks are almost "completely unpredictable." Much depends, he says, upon the extent to which development may be stifled by the imposition of even more restrictive legislation affecting load capacities and performance. Imposition of higher taxes is viewed also as a threat.

"Motor truck engineers feel that commercial vehicle transportation is still in its infancy," says Denham. "Just as World War I was the cradle in which the motor truck was nurtured, so World War II can easily be responsible for the evolution of entirely new departures in vehicle design. Large scale production of motor trucks for the armed services can mean that designs which have not been extremely popular among operators to date may

achieve a popularity resulting in their general adoption."

Stating that many an operator would be quite willing to go to the expense of acquiring large numbers of highly specialized types of vehicles to suit his particular operation, Mr. Denham declares: "It is quite conceivable that such designs might include monocoque construction, dual front as well as rear wheels, power steering, automatic gear shifting or torque conversion, and a host of other features outside the reach of the operator today."

The report was compiled from questionnaires answered by 30 companies manufacturing trucks. Supplementary questionnaires were sent to transmission, engine, axle, and trailer manufacturers. Some manufacturers also were visited and additional information thus was obtained. Reference was made to published association pamphlets, trade publications and educational literature issued by individual manufacturers. Returns were also received from 20 truck companies.

BUYS PLASTIC UNIT

Continental Can Co. has acquired the Reynolds Molded Plastic Division of Reynolds Spring Co., Cambridge, O., said to be the third largest custom plastics molding concern in the country. Continental entered the plastics field in 1943 through the acquisition of a substantial interest in Marco Chemicals, Inc. (Kline.)

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**How to Find the Number of Gallons
In a Horizontal, Cylindrical Tank**

HERE are some new rules which make it possible for anyone who can do arithmetic to determine the number of gallons of liquid in any horizontal, cylindrical tank. Referring to the sketches:

h = the height of the liquid, in inches;

L = the inside length of the tank, inches;

D = the inside diameter of the tank, inches.

When a tank is half full or less:

A—Subtract h from D , multiply the difference by h , extract the square root of the product, and then multiply by 1.5. In other words, this is the same operation as A, above.

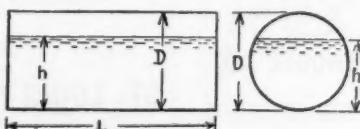
G—Subtract h from D and multiply the difference by .0023.

H—Subtract h from D , multiply the difference by h , extract the square root of the product, and then multiply by 1.5. In other words, this is the same operation as A, above.

I—Subtract h from D , multiply the difference by D , and extract the square root of the product.

J—Add the results of H and I and multiply the sum by G.

K—Subtract J from F and multiply the difference by L. The result is the number of gallons in the tank.



B—Multiply D by h and extract the square root of the product.

C—Add the results of A and B.

D—Multiply L by h and then multiply that product by .0023.

E—Multiply the results of C and D and the answer is the number of gallons of liquid in the tank.

When a tank is more than half full:

F—Square the diameter D . That is, multiply the diameter by itself and multiply the product by .0034.

118—D and W. July, 1944

The above rules are based on the writer's modification of Prof. John Goodman's formula for determining the areas of segments of circles. The original formula may be found in Goodman's well known "Mechanics Applied to Engineering."—W. F. Schaphorst, M.E.

For Shippers' Convenience, States, Cities and Firms are Arranged Alphabetically

**Omaha Warehouse
Enlarges Space**

Central Storage & Van Co., 1101-13
Jackson St., Omaha, 8, Neb., recently
purchased property of the Chicago
Lumber Co., at 14th and Marcy Sts.,
that city, on which is a four-story
mill constructed, sprinklered building.
Modern offices are being installed on
the first floor and the plant will be
ready for occupancy about Aug. 1.

On two lots adjoining this building
the firm will start construction im-
mediately of a one-story, sprinklered
distribution building which will have
about 16,000 sq. ft. of floor space.
Union Pacific trackage on both sides
of the projected building will enable
the firm to serve carload customers.

In addition, R. J. Mayer, president
of the firm states, a vacant lot at
15th and Marcy Sts., has been pur-
chased on which a garage with decks
for distribution of rough freight will
be built after the war.

The firm which is storing mer-
chandise and household goods in four dif-
ferent buildings, Mr. Mayer states,
will now be able to concentrate all
of its facilities in its consolidated
buildings.

New Quarters

New, street-level quarters at 134-
138 Washington St., New York City,
have been taken by Service Caster &
Truck Division of Domestic Indus-
tries, Inc. Howard W. Beers is New
York sales manager.

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Our buildings are clean, both Fire and Non-Fireproof, located on the lines
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802-812 Leavenworth Street, Omaha 8

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Storage in transit. Served by
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SPRINGER TRANSFER COMPANY ALBUQUERQUE

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in New Mexico

Complete and efficient service in distribution, delivery
or storage of general merchandise or furniture.

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Custom House Guide Out in New Edition

CUSTOM HOUSE GUIDE (83rd year) 1944 edition—Published by Custom House Guide, Box 7, Sta. P., Custom House, New York 4, N. Y.—\$20.00 plus postage. (Includes monthly Bulletin and Air Transportation as well as a loose-leaf binder.)

The annual Custom House Guide of over 1,500 pages (7 volumes in 1), thumb-indexed, covers the descriptions and limits of each port in the United States as well as its activities, facilities, port charges, and is a directory of those engaged in shipping and allied commerce trades. There is a general information section devoted to weights, measures, coin values, trade terms, air services, government departments, and other data on foreign and domestic commerce.

"Revisions of the annual Custom House Guide, during the past year," according to John F. Budd, publisher, "have been unusually heavy; several trade agreements have changed many rates of duty in the alphabetical index of 30,000 commodities; shipping

and commerce regulations are now included in the new Customs Regulations of 1943; these as well as the Internal Revenue Code have likewise been considerably altered due to war legislation and regulations.

"Interpreting these vast changes into informative data, such as the annual Guide has always given its subscribers in the past," "Mr. Budd says, "has been a colossal task this year, as new features and new ways of handling older ones had to be devised to properly cover the ever-changing subjects."

Great Lakes Shipping After the War

(Continued from page 75)

increasing importance as an international trade route. The products of the American mainland contiguous to the Great Lakes will be in great demand. The volume of shipping required for the needs of war will be curtailed, but the demands of world trade undoubtedly will be increased. It is the idea of the Maritime Com-

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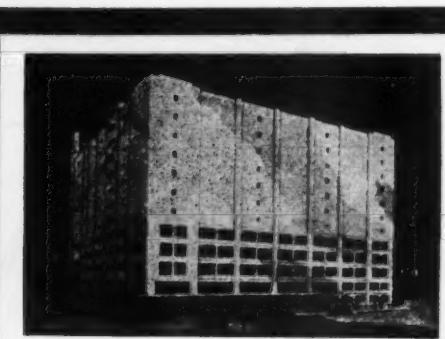
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mission that the Great Lakes should be in a position to meet these demands; to provide the port facilities and the ships to transport the products of the Middle West from fresh water ports on the lakes to salt water ports throughout the world.

The Great Lakes constitute a unique geographic feature. They constitute the world's largest composite body of fresh water. Although they are land-locked they have access to salt water by two routes: via the St. Lawrence and Mississippi Rivers. With reference to tonnage carried they rank among the great trade routes of the world.

Export Subsidiary

Timken Roller Bearing Co., Canton, O., has organized a subsidiary, known as the Timken Roller Bearing Co. of South America, to handle the company's post-war business there. In the past the company conducted its business through South American distributors. Jules A. Moreland, former New York representative for the company, is managing director of the new subsidiary, with headquarters in Sao Paulo, Brazil. (Kline.)

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Little Animals Do Big War Job

SABOTAGE is an all-inclusive term which runs the entire gamut of willful acts designed to destroy property or slow up production in wartime. Successful defense against sabotage requires the cooperation of the general public as well as the law-enforcement agencies, and it even drafts into service many furred and feathered creatures. Animals in particular have had quite a part in safeguarding war production.

An unusual application of animals in war plants may be cited in the use of ferrets to kill off the vast hordes of destructive rats and mice. The bill against such vermin each year is a big one. Rodents eat through wood, paper, textiles, and similar materials to ruin valuable products, not to mention the diseases they may carry to working crews, necessitating the loss of many man-hours a year. In the war against these unhealthy saboteurs, the rabbit hunter's bosom companion of bygone days, the ferret, is the number one police officer and detective. Sherlock the ferret tracks rats right into their own lair.

A good example of the importance of ferrets in industry today is found at The White Motor Co. plant in Cleveland where a posse of five ferrets has taken up the rat trail nighty



Courtesy The White Motor Co.

Twice a week the ferrets are bathed to keep them in healthy condition to carry on their war against rats. In the inset is "Susie" one of the most popular members of the White ferret colony.

for several months now. The score against the rodents has amounted to some 40 to 50 dead rats per week. This is an average. Naturally the toll showed a favorable decrease as

the ferrets secured their beachhead and gained control of the situation. But the job goes on because outside rodents can move in with crated shipments which arrive daily. White represents an average plant rather than any exception.

The ferrets are kept in special cages during the day, and at night are released to go their way in quest of rats which they follow through partitions, under floors, and into shipping crates. Always they return to their cages in the morning. When they were first released, signs were put up informing workmen that the furry creatures were there on the special rat mission.

The animals are fed a diet of bread and milk and given a bath twice a week with a mercury solution and castor oil. Flea and lice powder are also applied.

Handling of the ferrets is the job of the Sanitary Patrol which keeps the plant clean. The special wooden cages are stationed about the plant in areas where rats are most likely to live, such as in shipping and receiving rooms and storage areas. Prior to using the ferrets, the company employed rat exterminator without complete success. Today the problem is well under control, thanks to the fer-

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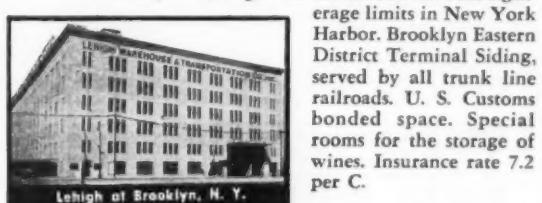
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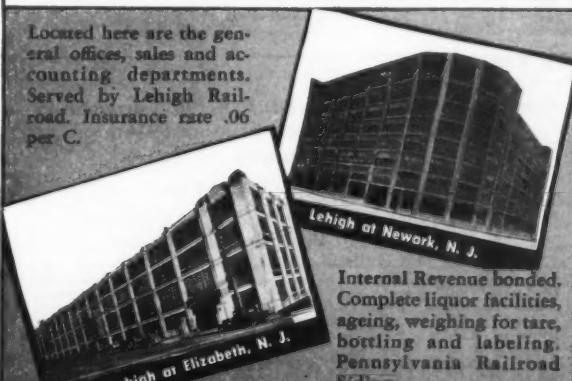
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ret posse which works tirelessly night after night.

The importance of keeping down the rat population can be understood in a plant which is making vital equipment of war. While the animals would do no damage to steel products, there is always the possibility that

they might harm seat covers, tar-paulins, and anything made of cloth or wood. And keeping rats and mice safely under control safeguards the morale of the women workers. Thanks to the ferrets the White plant has no product damage and no morale problem.

Manufacturers Should Have First Chance To Re-Buy War Surpluses, Fruehauf Says

The Truck-Trailer Mfrs. Assn., Washington, D. C., has been asked by its industry committee on disposal of excess military trailer vehicles to consider a recommendation that the manufacturer of such equipment be given first opportunity to repurchase.

Harvey C. Fruehauf, president, Fruehauf Trailer Co. and chairman of the committee, made the recommendation to the manufacturers' organization. In his report, he said:

"If the manufacturer of particular equipment does not care to repurchase any offered for sale as excess military equipment, the vehicles then should be offered for sale only to other trailer manufacturers or to bona fide dealers or distributors representing a trailer,

motor truck or automobile manufacturer."

He further recommended that if the number of military trailers to be distributed by the government should be greater than could be immediately absorbed by the civilian market, the government should hold the military trailers in a pool and release them back through the original manufacturers in quantities that could be absorbed without "demoralizing" the industry.

The only alternative to such a plan as proposed above, said Mr. Fruehauf, is to have the government finance the trailers taken by the original manufacturer until such time as the vehicles could be resold in the civilian market.

Butter Printing Unit Added by Buffalo Plant

Expansion of the warehousing and cold storage operations of the Terminals & Transportation Corp., Buffalo, N. Y., has been announced. The company has opened a new butter printing department where butter, warehoused by its customers, will be prepared in various sized packages and wrapped. This will enable the plant to package western creamery butter which is transported eastward in bulk, usually in butter tubs. In addition to regular storage, the company also maintains quick freezing rooms for the freezing of fruits and vegetables at below zero temperatures. (Toles.)

Streamlines Name To Ekco Products Co.

As of July 1st, the name of Edward Katzinger Co., Chicago, has been changed to Ekco Products Co. The new name incorporates the "Ekco" trademark with which the company has been associated for many years in the housewares field.

Beyond a change of name, no other changes are being made in the company personnel or methods of operation. The same executives continue to direct the activities of the company. Arthur Keating is chairman of the Board, and Lee B. Thomas is president.

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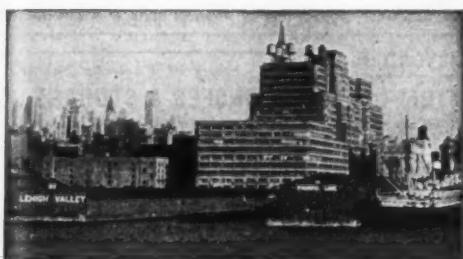
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Specializing in Cotton, Cotton Waste, Textiles, Alkalies, Denatured Alcohol, Anti-Freeze, Automobiles, Etc. Warehouses on D.L.&W. and N.Y.C. Private siding. Sprinkled throughout. Pool car distribution. Motor service.

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J. H. EVANS & SONS, INC.

Office & Warehouse: 107-121 Brookfield St.

Household Goods Moving, Storage, Packing, Shipping
Prompt service for any point in Westchester County

Member N.Y.P.W.A.—N.F.W.A.

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ASHEVILLE, N. C.



Ingle Transfer and Storage Co.
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Merchandise and Household Goods
2 Fireproof Warehouses
Pool Car Distribution
Consign shipments via Sou. Ry.
Asheville's Bonded Warehouses

CHARLOTTE, N. C.

AMERICAN STORAGE & WAREHOUSE CO.
CHARLOTTE 1, N. C.

OFFICE AND WAREHOUSE, 926 TUCKASEEGEE ROAD
MERCHANDISE, STORAGE ONLY, POOL CARS DISTRIBUTED,
MOTOR TRUCK SERVICE LOCAL AND DISTANCE, PRIVATE
RAILROAD SIDING. SPRINKLERED.
ESTABLISHED 1908

CHARLOTTE, N. C.

Carolina Transfer & Storage Co.

1230 W. Morehead St., Charlotte 1, N. C.
Bonded fireproof storage.
Household goods and merchandise.
Pool cars handled promptly. Motor Service.
Members A. W. A. and N. F. W. A.

CHARLOTTE, N. C.

All buildings fully fireproof construction

UNION STORAGE & WAREHOUSE CO., Inc.
BONDED

224-226 & 306-308 West First Street
MERCHANDISE STORAGE — POOL CAR DISTRIBUTION
Member of A.W.A.—Motor Service

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**DURHAM PUBLIC WAREHOUSES,
INCORPORATED**

2002 East Pettigrew St., Durham, N. C.
Merchandise Storage. Pool Car Distribution,
Private Sidings, Reciprocal Switching. Sprinklered
Buildings.

Member: American Chain & Whs.; A. W. A.

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BONDED



Champion Storage & Trucking Co., Inc.
326-28 South Davie St., Greensboro, N. C.
Merchandise & Household Goods
Pool Cars—Trucking Service
Sprinkler System — Private Siding
Represented by American Chain of Warehouses, Inc.

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TATUM-DALTON TRANSFER & STORAGE CO.

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POOL CAR DISTRIBUTION**

Private Siding

Trucking Service

RALEIGH, N. C.

CAROLINA STORAGE & DISTRIBUTING COMPANY

**MERCHANDISE STORAGE
POOL CAR DISTRIBUTION**

Private Siding

Members A. W. A. American Chain of Warehouses

Dodge Plant Magnet Truck Saves Vital Metal and Tires

A DOUBLE-BARRELLED saving of vital metal scrap and of tires on trucks hauling and making deliveries through the huge main plant of Dodge Division of Chrysler Corp. is

effected through a unique magnet-truck device.

Tough steel scrap is "swept" from the ground and floors by a powerful magnet on an inter-plant materials

handling electric truck. Scrap fragments, and particles not readily observed by the eye, are cleaned up in a manner similar to the action of a vacuum cleaner on a rug.

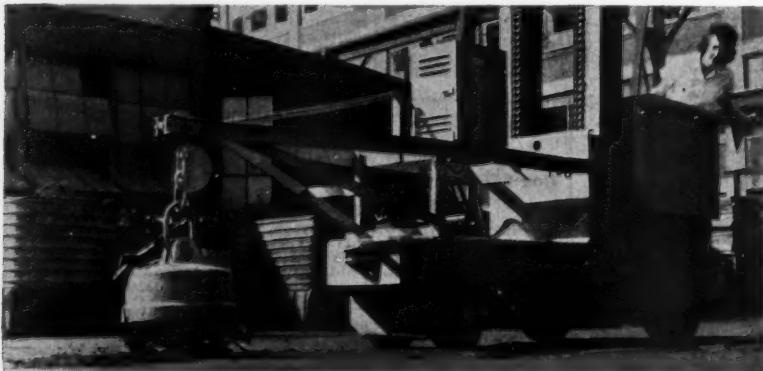
The idea was conceived by Dodge officials. Its development was prompted generally by the obvious saving achieved, but specifically by the use of greater amounts of the new and very tough and hard steels in certain of the many war contracts on which Dodge is engaged.

Scrap litter from this hard material is larger and heavier than the chips from steels used in automobile production days and consequently more destructive to pneumatic tires.

The device is simple, an 875 lb. electric magnet of 36 volts, hangs from a fixed boom on the electric fork truck. Both magnet and truck platform may be raised and lowered by controls. Many of these are driven by girls at the Dodge plant after a six-day period of training.

Roadways and docks in the big plant cover some 4 1/4 miles and the salvage from this large area is considerable. The magnet has a bulk capacity of 3200 lb. of armor plate but will pick up smaller scattered amounts of scrap and periodically drop its collection into conveniently located hoppers or "skid boxes."

The magnet is run by the battery which powers the truck and picking up of these scrap loads, it is said, uses less current than is consumed in moving ordinary loads.



Courtesy Dodge Div., Chrysler Corp.

SAVES METAL AND TIRES: Unique fitting of a powerful electric magnet to an interplant electric fork truck salvages much vital material and conserves delivery truck tires along more than four miles of docks and roadways in the huge main plant of Dodge Division, Chrysler Corp.

People . . .



Recently appointed warehouse consultants to the Space Control Committee, Surplus War Property Administration, who will work with each of the nine regional sub-committees in the nine Army Service Command Areas include the following: Region I—T. W. Haskell, Boston Tidewater Terminal, Inc., Boston, Mass.; Region II—J. Leo Cooke, Lackawanna Warehouse Co., Inc., Jersey City, N. J.; Region III—E. V. Sullivan, Terminal Warehouse Co., Philadelphia, Pa.; Region IV—H. C. Avery, Union Terminal Warehouse Co., Jacksonville, Fla.; Region V—W. Lee Cotter, Columbus Terminal Warehouse Co., Columbus, O.; Region VI—G. M. McConnell, Railway Terminal & Warehouse Co., Chicago, Ill.; Region VII—F. M. Cole, Radial Warehouse Co., Kansas City, Mo.; Region VIII—G. K. Weatherford, Dallas Transfer & Terminal Co., Dallas, Tex.; Region IX—J. W. Howell, Haslett Warehouse Co., San Francisco, Calif.; Washington, D. C.—Warren T. Justice, Pennsylvania Warehousing & Safe Deposit Co., Philadelphia, Pa.

Henry G. Elwell, president, Elwell, Phillips & Co., traffic consultants, Elizabeth, N. J., contributor to *DanDw*, editor of "Traffic Bit," and well known figure in the commercial traffic field, spoke last month on "War-Time Problems of Freight Car Use and Distribution" at Raritan Traffic Club, New Brunswick, N. J.

George M. Barnard, of Indiana, has been nominated by President Roosevelt to be a member of the Interstate Commerce Commission, succeeding the late Joseph B. Eastman.

Dr. John B. Crane, chief, transportation unit, Department of Commerce, was visiting lecturer in the air freight class recently at the Academy of Advanced Traffic, New York.

The North Atlantic and Great Lakes Chapters of the National Assn. of Refrigerated Warehouses, have chosen the following officers to serve during the current year: North Atlantic: Horace W. Wilson, Quaker City Cold Storage Co., Philadelphia, Pa., chairman; Arnold T. Hampson, Merchants Cold Storage & Warehouse Co., Providence, R. I., vice-chairman; W. M. Rider, Germantown Cold Storage Co., Germantown, N. Y., secretary. Great Lakes: George Hilgemeyer, South Side Cold Storage Co., Indianapolis, Ind., chairman; Russ B. Collins, United States Cold Storage Corp., Chicago, Ill., vice-chairman; R. S. McCrea, West Michigan Dock and Market Corp., Muskegon, Mich., secretary.

Appointment of John W. DeLind, Jr., as director of exports of The Crosley Corp., has just been announced by J. H. Rasmussen, Crosley commercial manager. For the past 25 years, Mr. DeLind has been associated with various phases of merchandising, mostly in export fields.

Milton L. Chapman, sales manager, California Fruit Growers Exchange, products department, has been appointed manager of that department, succeeding C. P. Wilson, who has been named director of products research. (Herr)

C. W. Peebles, traffic manager, Great Atlantic & Pacific Tea Co., Baltimore division, and president of the Maryland Motor Truck

Assn., has been named by Mayor McKeldin, of Baltimore, a member of the committees entrusted with the task of studying the Baltimore mid-city expressway-river crossing situation. (Ignace)

American Airlines, Inc., has placed its vice-president, Hollis Thompson, who is also president of American Airlines of Mexico, in charge of its entire program of route development which calls for the addition of more than 5000 route miles to its present domestic system and 3630 miles to its international routes. Mr. Thompson brings to his new task a background of experience in public relations. He was City Manager of Berkeley, Cal., from 1930 to 1940.

William A. Coulter, president, Western Air Lines, has been elected president and chairman of the board of directors of Inland Air Lines, Cheyenne, Wyo. Action followed recent Civil Aeronautics Board approval of Western's purchase of 83 per cent of the outstanding stock of Inland, and marks the first step toward ultimate consolidation of the two organizations.

Clifford Hayden has been appointed traffic manager of Interstate-Trinity Warehouse Co., Dallas, Tex., to succeed John D. Yates, resigned, who has become traffic manager of Belknap Van & Storage Co., Dallas.

W. J. Heil has been appointed sales manager of automotive trades, with headquarters at Detroit, representing the Minnesota Mining & Mfg. Co., St. Paul, Minn.

Cleveland Export Club has changed its

WILMINGTON, N. C.

FIREPROOF WAREHOUSE

FARRAR TRANSFER & STORAGE WAREHOUSE

1121 South Front Street

Household Goods—Merchandise

Long Distance Moving—Pool Car Distribution
Private Siding, A. C. L. Railroad Co.
Members, N. F. W. A.—A. T. A.



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Union Storage & Transfer Company

FARGO, N. DAK.

General Storage—Cold Storage—Household Goods

Established 1906

Three warehouse units, total area 161,500 sq. ft.; of this 25,338 sq. ft. devoted to cold storage. Two buildings sprinkler equipped. Low insurance costs. Spot stocks, Pool car Distribution. Complete warehouse services. Fargo serves North Dakota and Northwestern Minnesota.

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AWA—NFWA—MNWWA—ACW

GRAND FORKS, N. D.

Kedney

WAREHOUSE CO.
POOL CAR DISTRIBUTION
GENERAL STORAGE
MOTOR FREIGHT TERMINAL

Local & Long Distance Hauling of
Freight and Household Goods
Allied Van Lines—Agent

AKRON, OHIO

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A.D.T. Alarm.

Pool Car Distribution.

Household Goods Storage.

Low Insurance.

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Canton 2

Merchandise, Household Goods, Cold Storage

Pool car distributed. Private sidings. Free switching on all roads. Separate fireproof warehouses for household goods.

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90 YEARS OF WAREHOUSING

Cincinnati Merchandise Warehouses, Inc.

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Merchandise Storage—Pool Car Distribution

P.R.R. & Son. R.R. Sidings—Low Insurance Rates

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DISTRIBUTION—LONG DISTANCE TRUCK TERMINALS

11 Car Switch in Building

Internal Revenue and General Bonded Storage

Insurance Rate 14 1/2¢ per \$100 per annum

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OHIO

CINCINNATI, OHIO

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Long Distance Moving

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Consolidated. All fireproof. PRR siding at Juniata. NYC private siding at Kinsman and Consolidated.

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Five warehouses are ready to help you with your tough jobs. Equipped with 4 locomotive cranes. With buckets and magnets for handling heavy steel or bulk commodities. Other mechanical equipment for handling merchandise.

DOCK 22, Foot of W. 9th Street

CLEVELAND, OHIO

CLEVELAND, OHIO

CURTIS STORAGE & TRANSFER, INC.

"STORE WITH CONFIDENCE"



Specializing in Merchandise Storage
Pool Car Distribution—Bulk Tank Storage
Operating Own Delivery Equipment
Private Siding N.Y.C.R.R.

FRENCH & WINTER STS.

CLEVELAND 13, OHIO

name to the Cleveland Export-Import Assn. and elected new officers at its recent meeting. Group has adopted a new constitution and by-laws, as a result of a long study of postwar trade prospects, and the change in name reflects the members' viewpoint that exporting will depend largely on two-way foreign trade. New officers are: president, A. F. Munhall, treasurer of Columbian Vice & Mfg. Co.; first vice-president, R. L. Boughman, export manager of the White Motor Co.; second vice-president, R. C. Manning, sales manager of Rotor Tool Co.; treasurer, J. A. Hess, Central National Bank; secretary, Charles J. Thomas, director, trade expansion program, Cleveland Chamber of Commerce; members of the board of directors, C. B. Cook, Elwell-Parker Electric Co.; W. N. Lawson, Medusa Portland Cement Co., and E. F. Moldstad, Neale Physpers Co. (Kline)

Rodger M. Spahr, formerly division freight-passenger agent at El Paso, Tex., has been appointed general freight agent for the Santa Fe Railroad at Los Angeles, Cal., succeeding R. M. Deitiker, who has been transferred to Amarillo, Tex., as general freight agent of the Santa Fe System's Panhandle division. (Herr)

William D. Turnbull, former vice-president and sales manager, Pomona Pump Co., Pomona, Cal., has been named manager of the agency and specialties department of the Westinghouse Electric & Mfg Co., Los Angeles. (Herr)

W. A. McAuliffe, traffic manager, Hedger Transportation Corp., has been appointed vice-president in charge of traffic.

C. Bedell Monroe, president, Pennsylvania-Central Airlines, has been awarded the honorary degree of Doctor of Laws at the annual commencement of Marietta (Ohio) College.

The Office of Industry Advisory Committees, War Production Board, has announced the formation of the Railroad Car Builders Industry Advisory Committee. D. W. Odiore is the Government presiding officer. The membership is as follows: W. C. Bower, New York Central System, New York; T. M. Evans, Mt. Vernon Car Mfg. Co., Pittsburgh;

K. W. Fischer, Chicago, Burlington & Quincy RR, Chicago; K. C. Gardner, Greenville Steel Crr Co., Greenville, Pa.; R. L. Gillispie, Bethlehem Steel Co., Bethlehem, Pa.; C. A. Gill, Reading Co., Philadelphia; A. Van Hassel, Major Car Corp., New York; T. P. Gorter, Pullman-Standard Car Mfg. Co., Washington; Frank A. Livingston, Ralston Steel Car Co., Columbus, Ohio; J. F. MacEnulty, Pressed Steel Car Co., New York; and R. A. Williams, American Car and Foundry Co., New York.

Announcement has been made by the Neal Storage Co., Cleveland, O., of the resignation of A. M. McDarmont. Mr. McDarmont has been with the Neal organization for over 20 years, and was treasurer of the company. He is moving his family to Erie, Pa., where he has taken over a property for the purpose of a general storage business. Mr. McDarmont's new company will not have any connection with the Neal Storage Co. but will be wholly his own business.

Fred Rhode, City Ice & Fuel Co., vice-president and executive board member in charge of the company's extensive car-icing operations, was given a testimonial dinner recently at the Hotel Sherman, Chicago by William J. Sinek, president of the company.

Alton R. Seager has been elected chairman of the board of the Cleveland Steel Products Corp., and president of the Pennsylvania Rubber and Supply Co. W. J. Smith, formerly vice-president and general manager of Cleveland Steel Products, has been elected president and general manager. These promotions followed the death of J. C. Hipp, president of both firms. A. G. Singletary was advanced to executive vice-president, secretary, and a director of Cleveland Steel Products. (Kline)

Harvey G. Greer, recently with the Rubber Reserve Corp., has joined the technical service staff of the Witco Chemical Co., New York, with headquarters in Akron, O. (Kline)

William E. Goldsmith has been named traffic manager of R. G. LeTourneau, Inc., Peoria Ill. He has been with the company's traffic department since 1940 and is a director of the Transportation Club of Peoria. (Kline)

CLEVELAND, OHIO

"An old organization with young ideas"

THE GREELEY-GENERAL WAREHOUSE COMPANY

located in the

New York Central Freight Terminal
BROADWAY AND EAST 15TH STREET
Cleveland 15

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DIRECT FROM FREIGHT CARS



SHIPMENTS to Cleveland, consigned to The Lincoln Storage Company over any railroad entering the city, can be handled from freight car direct to our loading platform.

Carload shipments to our private siding, 11201 Cedar Ave., on the N. Y. C. Belt Line, connecting with all R.R.s. entering Cleveland; L. C. L. Penna. Euclid Ave. Sta. adjoining Euclid Ave. warehouse; other R.R.s. to Cleveland, Ohio.

LINCOLN STORAGE

W. R. Thomas, Pres.
CLEVELAND 15
11201 Cedar Ave.

Member NATIONAL FURNITURE WAREHOUSEMEN'S ASSN.
Agent ALLIED VAN LINES, INC.

CLEVELAND, OHIO

TEL. CHERRY 4170

Member of A.W.A.

NATIONAL TERMINALS CORPORATION

1200 WEST NINTH ST., CLEVELAND 13

Three Modern Fireproof Buildings—Two with Dock Facilities
on Cleveland's Water Front

Most Economical Warehouse and Distribution Services
VIA WATER—RAIL—TRUCK ARE AVAILABLE THROUGH
Cleveland's Largest Cold and General Merchandise Warehouse



Charles L. Holdsworth has been named traffic manager of the United States Plywood Corp., having previously served as traffic manager of Barber Asphalt Co. for 15 years. (Kline)

C. W. Trust has been named assistant vice-president in charge of traffic, U. S. Steel Corp. of Delaware, announced E. G. Plowman, vice-president-traffic. In addition, Mr. Trust will continue as general traffic manager of Carnegie-Illinois Steel Corp., National Tube Co., American Bridge Co., H. C. Frick Coke Co., and United States Coal & Coke Co. He was with U. S. Steel subsidiaries for 40 years, starting with Carnegie Steel Co. as a rate clerk. He became general traffic manager, U. S. Steel Corp. subsidiaries, in 1949. (Kline)

John Plattner, Davies, Turner & Co., has been elected president of the Chicago Freight Forwarders & Customs Brokers Assn., which this year observed the 25th anniversary of its organization. Other new officers are as follows: vice-president, W. A. Woods, International Forwarding Co.; secretary-treasurer, C. J. Novak, Universal Carloading Co.; chairman of the board, E. E. Marks, Ernest E. Marks & Co.; directors, J. P. Collins, Judson-Sheldon Corp.; W. C. Sullivan, W. C. Sullivan & Co.; George W. Lyons, Gallagher & Ascher Co. (Slawson)

James C. Cantwell, has been appointed traffic manager of Decatur Milling Co., Decatur, Ill., to succeed Francis A. Walker, now serving as sales manager in the specialty department. (Slawson)

Edwin A. Kuecker, president, Kuecker Steamship Co., Chicago, has been commissioned a captain in the Army Transportation Corps and is now stationed at Newport News, Va. (Slawson)

Ben Leventhal, Roosevelt Cartage Co., Chicago, has been re-elected president of Central Motor Freight Assn. John Viking, Webber Cartage Co., Waukegan, Ill., is the new first vice-president, and Walter Mullard, Decatur Cartage Co., was re-elected 2nd vice-president. Carl Orie, Hayes Freight Lines, Mattoon, Ill., is the new secretary and Barnes Cushman, Cushman Motor Delivery, Chicago,

OHIO

CLEVELAND, OHIO



**City-wide Facilities
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of Household Goods**
Private rail sidings
Ample equipment
A real reputation for service

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Exclusive Agent:
Greater Cleveland
for Aero-May-
flower Transit
Co.

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HAS THE FACILITIES
TO MEET ALL OF YOUR NEEDS

Downtown location; Modern and fireproof; Low insurance rates;
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Office and display space; Telephone accommodations; U.S. CUSTOM BONDED.

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DAN EDWARDS at COLUMBUS

Parking—Shipping—Storage—Local and Long Distance Moving—Steel
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430 North High St., Columbus 15

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COLUMBUS, OHIO

THE MERCHANDISE WAREHOUSE CO.

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Complete service for

MERCHANDISE STORAGE AND DISTRIBUTION

Private Siding NYC and Big Four

14 Car Capacity

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Modern warehouse for merchandise—Low
insurance—Central location in jobbing dis-
trict—Private railroad siding—Pool cars
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WRIGHT TRANSFER & STORAGE CO.

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Merchandise—Household Goods

Wright Service to Meet Your Requirements

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WAGNERS SERVICE, INC.

Pennsylvania Railroad and Lowry Ave.

A warehouse service that embodies every modern facility for the storage and distribution of Household Goods and Merchandise—Motor Freight Service—Door to door delivery at Dayton, Springfield and Columbus daily.

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Merchandise and Furniture Storage

Willis Day
Automatic fire and burglar alarms—ADT
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TOLEDO, OHIO

CAR CAPACITY

800—COLD

400—DRY

PRIVATE SIDINGS
N.Y.C. AND
B.G.O. RR'S



GREAT LAKES TERMINAL WAREHOUSE CO.

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Office and Main Warehouse: 15-23 So. Ontario St., Toledo 3

BRANCH WAREHOUSE: 2131-51 Smead Ave.

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Sprinklered Buildings—200,000 square feet Dry Storage—70,000
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New York Central and Switching—Merchandise Storage—Pool Car
Distribution—Negotiable Receipts—Transit Storage Privileges—
Low Insurance Rate—City Delivery System.

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**TOLEDO TERMINAL
WAREHOUSE, INC.**
128-138 VANCE STREET, TOLEDO 2, OHIO

Merchandise storage . . . Pool car distribution . . .
Fireproof . . . Private siding Nickel Plate Road.
Free switching . . . Negotiable receipts . . . Transit
storage arrangements . . . Motor truck service . . . Located
in Jobbing District . . .



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Ohio Warehousemen's Association

Toledo Chamber of Commerce



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the new treasurer. Chester G. Moore was continued as chairman of the board, to which 30 members were elected at the recent annual business meeting. (Slawson)

A. B. Compton, Jr., Lincoln Storage Co., Dayton, was recently elected president, Ohio Furniture Warehousemen's Assn., and Charles Armitage, Peoples Storage Co., Cleveland, was made president of the Ohio Household Goods Carriers' Bureau.

Royce G. Martin, president, Electric Auto-Lite Co., Toledo, O., has been elected chairman of the board, to fill the vacancy caused by the death of C. O. Miniger. Frank H. Landwehr, veteran secretary of Auto-Lite, has resigned, to manage the estate of the late Mr. Miniger. (Kline)

G. M. Kingsland, formerly of the Cleveland office of the Minneapolis-Honeywell Regulator Co., has been placed in charge of the new refrigeration controls division, succeeding **A. B. Newton**, resigned. (Kline)

J. E. Mayl, vice-president, Goodyear Tire and Rubber Co. of California, will return to Akron to head the parent company's tire sales division. He has been with Goodyear since 1925. (Kline)

William H. Searight, vice-president, Western Cataphote Co., Toledo, O., which does an extensive highway and other sign business (reflector lites, I think), has become sole owner of the business, purchasing the half interest held by **Charles T. Harther**, president. (Kline)

Col. A. Lane Critcher has completed the assignment for which he went on foreign duty 13 months ago and has permission to go on "inactive status" at the completion of his terminal leave July 3. His home is at 4309 North 37th St., Arlington, Va., and his office at the Investment Building, 15th & K Streets, N.W., Washington 5, D.C.

Robert Curran has been appointed representative of the Owens-Illinois Can Co., Toledo, O., subsidiary of Owens-Illinois Glass Co., in Philadelphia. (Kline)

Charles M. Dooley, has joined the merchandising division of the Owens-Illinois Glass Co. in Toledo, O., in the glass container division. (Kline)

A. C. Fowler has been appointed export manager of the Rayon Corp. of America, as the first step toward international expansion. He was former managing director of the United States Rubber Co. in Northern Europe for several years, and has also had extensive export experience with the West Indies and Central and South American countries. (Kline)

Mehmed S. Zia has been named foreign representative of the American Brake Shoe Co., representing the firm in the Mediterranean zone and the Near East, with headquarters in Cairo. For ten years he maintained his own export-import business in Detroit. (Kline)

R. W. Thompson has been named director of engineering of the General American Transportation Corp., Chicago, with which he has been associated for 24 years. (Kline)

Melvin R. Greene, former Baltimorean, has been named regional director of a new highway transport department formed by consolidation of two divisions of the Office of Defense Transportation. It has been announced by Col. J. Monroe Johnson, ODT director. The consolidation became effective May 31. Mr. Greene, who was engaged in water transportation work at Baltimore before joining the ODT three years ago, has been regional director of motor transport in the Philadelphia office since August, 1942.

M. D. Bensley has been named general manager of the three plants of H. K. Porter Co., Inc., of Pittsburgh, Pa., at Mt. Vernon, Ill. The plants, which recently became Porter subsidiaries, are Mt. Vernon Car Mfg. Co., Wheel Foundry Division of Mt. Vernon Car, and J. P. Devine Mfg. Co.

W. R. Hucks, with the operating division of the Rubber Co. since 1942, has been named production manager of all government synthetic rubber plants. He was

manager of the raw materials division of the B. F. Goodrich Co. before accepting the government assignment.

Vincent M. Smith, formerly executive secretary of the Aircraft Traffic Assn., Los Angeles, has been appointed general sales manager for the joint activities of the Colleg Fast Freight and Comet Freight Lines, common carriers, respectively, between Los Angeles and points in Oregon and Washington, and Los Angeles and points in Arizona. (Herr)

Harry S. Payne, Corona, Cal., truck and warehouse operator, has been elected president of the Associated Carriers Agency of Southern California. **R. T. Christmas, Jr.**, Pasadena, was elected vice-president; **Ed Riner**, Van Nuys, secretary. **Herbert A. Rusk**, formerly traffic manager for E. H. Willig Truck Transportation, Inc., and Cold Line Stages, was appointed managing director. (Herr)

Red Line Express, operating between Lancaster and Los Angeles, Calif., has been sold by **Forrest Sullivan** (who is retiring from business) to **Robert Snowden**, former owner of the Snowden Transportation, Inc. (Herr)

C. P. Joslyn, former mechanical goods sales manager for Goodyear Tire and Rubber Co., Akron, has been named sales manager of the company's synthetic sales division. He has been with Goodyear since 1926. (Kline)

Walter W. Kremer, formerly general freight agent for the Canadian Pacific Railway in Boston, has been appointed traffic manager in the West for the Boston & Maine Railroad, according to an announcement by **J. W. Kimmer**, vice-president in charge of traffic, Boston & Maine. (Wellington)

A. F. Bell, Seattle, has been elected president; **Maurice R. Goodwin**, Spokane, vice-president, and **W. G. Dickinson**, Seattle, secretary-treasurer of the Washington State Warehousemen's Assn.

Sam B. Stocking has been elected president, Shaffer Terminals, Inc., Tacoma, Wash., and also becomes president Terminal Warehouse Inc. (Haskell)

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 Lowest Insurance Rates—Sprinkler Equipped
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Walter P. Hongland, vice-president, Graybar Electric Co. and central district manager, with headquarters in Chicago, will retire from the company after 44 years of service. He will be succeeded by George J. Cosman, formerly assistant central district manager.

H. Randolph Barbee, secretary, Federal Storage Co., Washington, D. C., has been elected to membership in the Controllers Institute of America. The Institute is a technical and professional organization of controllers devoted to improvements of controllership procedure.

At the recent annual meeting of the Purchasing Agents Assn. of Chicago, the following were elected to office in the association: president, Henry C. Bauer, Revere Copper & Brass, Inc.; vice-president, A. G. Pearson, National Broadcasting Co.; 2nd vice-president, M. R. DeBaets, Bowman Dairy Co.; treasurer, Harry H. Wise, Scovill Mfg. Co.; secretary, L. R. Seen, Borg & Beck.

Premier Carloading Corp., New York, announces the following new officers: J. V. Buggiari, president; Edward Monett, ex-vice-president and treasurer; A. McNeill, vice-president; A. B. Bogan, vice-president; J. M. Connally, general manager; W. H. Hickman, traffic manager.

Announcement is made by Thomas A. Edison, Inc., of the appointment of two new vice-presidents. They are K. G. Berggren, manager of the special products division, and

C. D. Geer, general manager of the company's instrument division. Both will continue in their present capacities.

George Frye, transportation officer, Pennsylvania-Central Airlines, has been selected as a member of the Advisory Panel of the Washington Regional Committee of Defense Transportation.

Robert H. Haley, one of the country's veterans with over 40 years' experience in the traffic field, has been appointed general traffic manager of American Steel & Wire Co., subsidiary of U. S. Steel Corp. Mr. Haley, who for six years has been New England District traffic manager of U. S. Steel Corp. subsidiaries, will move to Cleveland, where he will be located in the wire company's general offices.

OBITUARY

H. Townsend Hoopes, 47, president, Great Lakes Transit Corp., Buffalo, N. Y., died June 14 in that city. He was also president and general manager of the Terminals and Transportation Corp., and president of Great Lakes Air Transport, Inc., which has filed application to operate cargo planes after the war. He was born in Duluth, Minn., and attended Syracuse University. In 1916-17 he was assistant superintendent of Northern Cold Storage and Warehouse Co., Duluth. Subsequently, he was connected with the McDougal-Duluth Shipbuilding Co., the Inter-

waterways Line, Inc., and the Minnesota-Atlantic Transit Co. He had been president of the Great Lakes Transit Co. since 1941. He was a member of the Society of Naval Architects and Marine Engineers and of the Buffalo and Minneapolis Traffic Clubs.

J. J. Ross, 74, president of J. J. Ross Mill Furnishing Co., Portland, Ore., and for many years connected with the manufacture of flour milling machinery in eastern centers, died recently at his Portland home. He was a native of Beverly, Ohio, born Nov. 28, 1866. (Haskell)

Albert Bernhardt Fisher, 49, vice-president, Fisher Warehouse Corp., Salt Lake City, and brother of Frank A. Fisher, president of Fisher Brewing Co., died in a Salt Lake hospital, May 24. Born in Salt Lake City March 4, 1895, a son of Albert and Alma Fisher, he attended Salt Lake schools, Belmont Military Academy, California, and Stanford University. He received a doctor of jurisprudence degree at Stanford. He practiced law several years in Salt Lake City and Los Angeles. A veteran of World War I, he served in France as a captain in the Twenty-second machine gun battalion. On June 2, 1917, he married Elma Darling in Salt Lake City.

George M. Burdett, 59, for 15 years vice-president and chief counsel for Lawrence Warehouse Co., Chicago, died recently at his suburban home in La Grange, Ill. A native of Rome, N. Y., he became a resident of Chicago 18 years ago. (Slawson)

August Bontoux, 69, founder and president of International Forwarding Co., Chicago, died May 22 in that city. Since organizing his company in 1906, the business has expanded until today it has branches in 32 cities, all of which were closed for the funeral. Mr. Bontoux served as Latvian consul in the midwest from 1931 until the republic was abolished. He was widely known as a patron of arts and had been active in civilian defense work in Chicago. (Slawson)

Joseph Arbour, 68, of New Britain, Conn., who expanded a business started with one horse and a former fire department vehicle into one of the biggest trucking concerns in the East, died recently at Hartford, Conn. Mr. Arbour was the founder of Consolidated Motor Lines and before his retirement in November, was head of Associated Transport, Inc., of New York. Born in St. Raphael, Que., he entered business in 1907, taking a stand in a public park with his horse and old fire department wagon. Ten years later he began using motor trucks. In 1930 Mr. Arbour reorganized the Consolidated Motor Lines, taking in seven concerns besides his own. Consolidated was called the largest independent motor line in the East in 1936 when it took over the Simpson Transportation Lines of New York. The merger with Associated Transport came in 1942.

Charles M. Starkie, 40, office manager of the Quincy Cold Storage Warehouse Co., Boston, died May 26 after a long illness. (Wellington)

Roy Wood, 57, of Arlington Heights, Mass., for many years in the express and transportation business, died May 26. (Wellington)

George H. Connolly, 68, superintendent of Arlington Storage Warehouse, Arlington, Mass., died suddenly May 21 at his residence in Arlington. (Wellington)

Morris D. Lloyd, 80, for the last 25 years manager of hardware warehouses for Beals, McCarthy & Rogers, Inc., Buffalo, N. Y., died May 29 in a Buffalo hospital after a six-week illness. He was at one time associated with the old Sheppard Hardware Co. (Toles)

Joseph H. Breman, owner of Breman's Transfer Co., and president of the West Penn Garage, Leechburg, Pa., died late in May at Pittsburgh. In addition to his business activities he was a member of many charitable organizations.

Thomas H. Holleque, 46, former official of the Lyon Van & Storage Co., in Seattle, died suddenly in Los Angeles, May 18. (Haskell)

Capt. H. C. Hansen, 75, a leading figure in the Pacific Northwest shipping world for many years, died suddenly while attending a Transportation Club of Seattle luncheon in May. He had been prominent in shipping circles not only of the Pacific Northwest and Puget Sound but in British Columbia, Willapa Harbor and the Columbia River region for more than a quarter of a century. He was a former builder and master of square-riggers and sailing vessels in the old days, but more recently manager of the Willapa Harbor Stevedoring Co. He came to this country from Norway in 1916. (Littelljohn)

George A. Voorhees, 49, president of Youngstown Rubber Products Co., Youngs-

town, O., died May 11. He was formerly with Republic Rubber division of Lee Rubber and Tire Corp. (Kline)

Latin American Exports Increase

Notwithstanding loss of their European markets, Latin-American republics exported goods of a higher aggregate value in 1942 than in any year since 1937, and during 1943 they exported more than \$1,300,000,000 worth of goods to the United States, a still greater increase, according to the U. S. Department of Commerce.

As a result of the surplus of exports to the United States and other countries outside the Latin-American area, the American republics as a group at the end of 1943 held over \$2,000,000,000 in gold and foreign exchange—largely dollars. To this large accumulation the surplus of exports of merchandise, gold and silver to the United States in the period 1941-43 had contributed more than \$1,000,000,000. It placed the Latin American countries in a very strong financial position to meet their import needs in future years.

HAZLETON, PA.



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LONG DISTANCE MOVING

Private Siding B. & O. R.R.

CAA Plan

Calls for 6,000 Post-War Air Fields

About 6,000 air fields and airports, ranging from L-shaped village fields with 1,800-ft. runways to complex fields with paved runways a mile or more in length are being planned by the Civil Aeronautics Authority to expand air transport after the war, according to a report published by the *New York Times* recently.

The program, which in financing will involve federal, state and municipal cooperation, was described by Charles I. Stanton, Administrator of Civil Aeronautics, who is now compiling reports on which recommendations will be made to the Congress as one major phase of America's post-war planning.

It also is expected that the proposed system will take the place of the air-strip program advocated by the Bureau of Public Roads and already tried in experimental form as part of the early war preparedness program.

About two dozen air strips one mile long and 500 feet wide were built when the prospect of air attack on this country was a real threat. The strips were designed as emergency landing and servicing spots for warplanes if military airdromes should be rendered unusable by bombing.

Some of the air strips made of steel

mats and concrete, were said by Mr. Stanton to have cost \$1,000,000 each.

On the other hand, Mr. Stanton said, engine failures and low fuel capacity of "ancient" planes have been corrected to such a degree that emergency facilities would exist plentifully under the plan for the construction of airports proposed by the CAA.

The goal of the CAA is to place adequate air facilities, geared to expected usage, within reasonable distance of each of the 6,670 communities in the United States with a population of 1,000 or more persons.

The four basic classes of airports currently planned are as follows:

Class 1: For small communities with privately owned planes accommodating two to five passengers and weighing less than 4,000 lb. an L-shaped surface with runways 1,800 to 2,500 ft. in length.

Class 2: For communities of 5,000 to 25,000 population, a field with six direction strips 2,500 to 3,500 ft. in length. Able to accommodate larger private airplanes and small transports with capacity up to twenty passengers.

Class 3: For cities of 25,000 to 250,000 population more fully developed field with six-direction landing strips 3,500 to 4,500 ft. in length ca-

pable of handling present-day thirty-place transports with gross load weights up to 50,000 lb.

Class 4: For major cities and airway terminals, all-direction strips, each longer than 4,500 ft. able to handle airplanes with fifty or more passenger places, the largest now in use or planned for the immediate future.

Rail Service Substituted For Trucks in Far West

The ODT has authorized six motor common carriers operating from points in California to destinations in Washington and Oregon to substitute rail for motor service in order to utilize transportation equipment more fully and alleviate traffic congestion, the ODT has announced.

The motor-rail diversion authorized by the ODT applies to the transportation of commodities from San Francisco, Oakland, Alameda, San Leandro, Richmond, Bates, or Stege, in California, to Portland, Ore., or Seattle, Wash., by Consolidated Freightways, Pierce Auto Freight Lines, Los Angeles-Seattle Motor Express, Oregon-Nevada-California Fast Freight, Inc. System Freight Service, and Mitchell Bros. Truck Line.

ODT officials explained that an unbalanced freight movement between these origin and destination points involving empty freight cars and heavily loaded trucks moving in the same direction made this action necessary.

For Shippers' Convenience, States, Cities and Firms are Arranged Alphabetically

Re-Use of Cartons Has Increased Damage Claims —More Equitable Pro-Rating of Losses Urged

ASSERTING that losses from damage to merchandise in transit had increased tremendously since the practice of re-using shipping cartons as a war emergency measure was instituted at request of the War Production Board, F. E. Scott, vice-president, Thompson Transportation Co., Los Angeles, proposed at a recent meeting of the Pacific Coast Transportation Advisory Board that some equitable understanding be arrived at between the shipping public and carriers, rail as well as truck, whereby the damage loss would be pro-rated.

Mr. Scott declared that it is difficult to imagine that negligence in the handling of commodities would result in as much as 100 per cent increase in damage in comparison with normal times, as is the case in some classifications of goods. He suggested that, unless the evidence was positive

that the damage was due to negligent handling, settlement be made on the basis of 25, 50 or 75 per cent.

Decrying the use of second-hand cartons, Mr. Scott declared that his experience with them has been that the most practical solution is to return cartons to the factory and have them made into new ones.

Pointing out that 60 per cent of commodities shipped out by some firms is being packed in second-hand, third-hand and even fourth-hand containers, Mr. Scott stated that such reuse is an invitation to thefts.

"When these cartons reach the ultimate destination, the consignee is careful to secure all notations as to the condition of the carton. You will find notations on the delivery receipts such as 're-coopered,' 'seam opened,' 'carbon stained,' 'received subject to check as to contents.'

The speaker pointed out that such notations are extremely valuable to persons who wish to take advantage of every opportunity to file damage claims.

Asserting that the re-use of containers has been found to be one of the main sources of "concealed losses," Mr. Scott stated that an open seam on a package is an invitation for freight handlers to remove a few items from the package. That type of loss, he said, is the most difficult to track down.

Clifford C. Malsie, general traffic manager, Mission Dry Corp., Los Angeles, presented a report on the effect of re-used cartons on the shipment of bottled goods. He stated that while the plan of the WPB in urging the reuse of cartons as a measure of assistance to carton manufacturers was sound in theory, it is a case of being

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110 NO. REED ST.

Fireproof, sprinklered building with private siding on
the C&NW.

Labeling and Sorting. Distribution of Pool Cars, Household
Goods Transferred. Refrigerated Truck Service.

Owners and operators of Wilson Forwarding Co.

Members of NFWA—MinnNWA—AWAN

Agent for AVL

TENNESSEE—TEXAS

KNOXVILLE, TENN.

FIREPROOF STORAGE & VAN COMPANY, Inc.

201-211 Randolph St., Knoxville 8, Tennessee

135,000 square feet on Southern Railway tracks

Equipped with Automatic Sprinkler

Insurance at 12c. per \$100.00 Household goods shipments per annum

Pool Cars distributed.

MEMBERS American Warehousemen's Ass'n

PROMPT AND EFFICIENT SERVICE

MEMPHIS, TENN.



S. S. DENT, Owner

General Warehouse Co.

421 So. Main St., Memphis 3

"Good housekeeping, accurate records, Personal Service"

Located in the center of the Jobbing & Wholesale District

Sprinklered Low Insurance
Private R. R. siding Perfect service

MEMPHIS, TENN.

Benton T. Grills, Sec'y. & Mgr.

NICKEY WAREHOUSES, INC.

"Memphis Most Modern Warehouses"

285-305 West Trigg Ave., Memphis 2

Merchandise Storage & Pool Car Distribution
Local Delivery Service

A.D.T. Burglar and Sprinkler Supervisory Services. Illinois Central, Frisco & Mo. Pac. Private rail siding 9 car spot.

MEMPHIS, TENN.

W. H. DEARING, General Manager

POSTON WAREHOUSES

ESTABLISHED 1894

671 to 679 South Main St., Memphis 2

Insurance Rate \$1.26 per \$1,000 per Annum Distribution a Specialty
Merchandise storage, dependable service, free switching, Local storage delivery,
Illinois Central and Cotton Belt Railway tracks. Automatic Sprinkler. A.D.T. watchmen.

MEMPHIS, TENN.

H. K. HOUSTON, Pres. P. D. HOUSTON, V.P.

UNITED WAREHOUSE & TERMINAL CORP.

Warehouse No. 1
137 E. Calhoun Ave.

Warehouse No. 2
138-40 St. Paul Ave.

Memphis Tennessee

Storage (Mdse.)—Pool Car Distribution—Local delivery service—Office Space.
In the heart of the wholesale district and convenient to Rail, Truck and express
terminals. Eight car railroad siding—(N.C. & S.T.L. and L.N.W.)—Reciprocal switching.
Represented by Distribution Services, Inc. Member of A.W.A. and M.W.A.

penny wise and pound foolish.

Mr. Malsie declared that the use of second-hand containers is reflected in a substantial increase in damage-in-transit to bottled merchandise. In 1943, he cited, claim payments on alcoholic beverages shipped in glass containers amounted to slightly in excess of \$2,000,000 on carlot movements and about \$77,000 on l.c.l.; whereas, in 1942, the actual claim payments on

such commodities amounted to \$1,008,660 on carlots and \$33,255 on l.c.l.

P. H. Emerson, transportation inspector, Western Pacific Railroad, San Francisco, recommended the inauguration of an educational campaign by carriers and shippers to familiarize shipping and receiving clerks, warehousemen and freight house personnel with the proper ways of handling cartons. (Herr)

New Warehouse Assn.

Formed in Memphis

A new organization to be known as the Mid-South Warehousemen's Assn. has been formed in Memphis, Tenn., by local warehouse operators controlling about 805,000 sq. ft. of storage space, said to be about 85 per cent of public warehouse space in Memphis. The new organization expects to open offices in Memphis on or about Sept. 15. Horace K. Houston, president, United Warehouse &

Terminal Corp., is president of the new association.

Purposes of the group have been announced as follows: to provide a central source of information on Government regulations applying to warehouses; to represent the geographical territory in city, state and national affairs; to make a study of standard system of accounting for figuring costs, to promote postwar plans, to provide traffic advisory service, to uphold the customs and practices of the industry; to make studies of safety, efficiency and insurance and

124 1ST AVE. N., NASHVILLE 3

BOND, CHADWELL CO.

MERCHANDISE
WAREHOUSE.
RAIL, TRUCK
AND RIVER
TERMINAL.



NASHVILLE, TENN.

521 Eighth Ave., So., Nashville 2

Central Van & Storage Co.

MERCANTILE AND HOUSEHOLD STORAGE
WAREHOUSE STOCK and POOL CAR DISTRIBUTION
Automatic Sprinkler System—Centrally Located

NASHVILLE, TENN.

Nashville Warehousing Co.

P.O. Box 555, Nashville 2

GENERAL STORAGE

POOL CAR DISTRIBUTION

FREE SWITCHING—CITY TRUCKING

NASHVILLE, TENN.

ESTABLISHED 1886

THE PRICE-BASS CO.

194-204 Hermitage Ave., Nashville 2

STORAGE

Automatic Sprinkler—Spot Stock and Pool Car Distribution—
Private Siding

AMARILLO, TEXAS

ARMSTRONG TRANSFER & STORAGE CO., INC.

103 SOUTH PIERCE STREET

Merchandise Storage & Distribution
Household Goods Storage, Moving & Packing
Long Distance Operators

WM. C. BOYCE

J. A. RUSH



to cooperate with other warehouse associations and organizations.

Officers in addition to Mr. Houston include: W. H. Dearing, John H. Poston, Storage & Warehouse Co., vice president; W. L. O'Bannon, Patterson Transfer & Storage Co., treasurer; J. T. Mayer, Shelby Warehouse, Inc., secretary; A. H. Alsheimer, St. Louis Terminal & Warehouse Co., assistant secretary, and J. H. Townsend, manager.—(Grissam)

Memphis Whse. Buys

The property at 161 S. Front St., Memphis, Tenn., an eight story building with full basement, has been sold to the Q. S. Storage and Transfer Co., now at 424 Monroe Ave. and 16-18 S. Lauderdale. The building is of brick, steel and concrete construction, with elevators, sprinkler system, etc. The purchaser will merge its present facilities in the larger one and will occupy in about six months. Sam J. Sansome, general manager of the transfer and storage company, said. The firm was established in 1922. It is local agent for the Aero-Mayflower Transit Co.

For Shippers' Convenience, States, Cities and Firms are Arranged Alphabetically

BEAUMONT, TEXAS

TEXAS STORAGE COMPANY

656 Neches St. Beaumont, Texas

Merchandise and Household Goods
Warehouse, Concrete Construction
30,000 Sq. Ft. Distribution of Pool Cars
Transfer Household Goods

Agent for A.V.L. Member of N.F.W.A.—S.W.A.T.A.

CORPUS CHRISTI, TEXAS

CORPUS CHRISTI WAREHOUSE AND STORAGE COMPANY

Located AT PORT SITE

Storage Distribution Drayage
96,400 Sq. Ft. Sprinklered Low Insurance Rates
Member: Southwest Warehouse and Transfermen's Ass'n

CORPUS CHRISTI, TEXAS

Robinson Warehouse & Storage Co.

General Offices: 1500 N. Broadway, Corpus Christi

Specialists in

General Merchandise Storage—Pool Car Distribution
Fully Bonded Warehouses at Alice, Corpus Christi, Harlingen and Victoria
Daily and overnight common carrier Motor Freight Service to Houston, San Antonio, Austin, Laredo and Rio Grande Valley, serving all intermediate points.
Expert Handling; Inquiries invited

DALLAS, TEXAS

In Dallas It's Binyon-O'Keefe

MERCHANDISE STORAGE—POOL CAR DISTRIBUTION
Our modern Centrally located fireproof warehouse is completely equipped to serve you with over 75,000 square feet of merchandise and household goods storage space.

MOVING—STORAGE—PACKING—SHIPPING



Since 1875

BINYON-O'KEEFE
Tireproof Storage Co.

Since 1875



2201 LAWS ST., DALLAS 1

Associated with Distribution Service, Inc.

DALLAS, TEXAS

ESTABLISHED 1875

DALLAS TRANSFER AND TERMINAL WAREHOUSE CO.

Second Unit Santa Fe Building, Dallas 2, Texas

Modern Fireproof Construction—Office, Display, Manufacturers, and Warehouse Space



Operators of the Lone Star Package Car Company (Dallas and Fort Worth Divisions)

H. & N. T. Motor Freight Line Agents for Allied Van Lines, Inc.

A.W.A., N.F.W.A., American Chain of Warehouses, Southwest Warehouses & Transfermen's Assn., Rotary Club



DALLAS, TEXAS

INTERSTATE-TRINITY WAREHOUSE COMPANY

301 North Market St., Dallas 2



Merchandise Storage and Distribution
Household Goods Storage, Moving & Packing
Long Distance Hauling
R. E. ABERNATHY, Pres.
J. H. CHILES, Vice-Pres.

* Represented by

NEW YORK ALLIED DISTRIBUTION INC.

11 WEST 42ND ST., PENN. 6-0967

CHICAGO

1525 NEWBERRY AVE. MON. 5331

DALLAS, TEXAS

SPECIALIZING

MERCHANDISE STORAGE
POOL-CAR DISTRIBUTION
SERVING THE GREAT
SOUTHWEST AREA
EVERY ACCOUNT IS
PERSONALLY SUPERVISED
BY THE MANAGEMENT

KOON-McNATT STORAGE & TRANSFER CO.

1100 CADIZ ST., Dallas 2

CONTRACT OPERATORS FOR ALL RAIL
LINES AND UNIVERSAL CARLOADING &
DISTRIBUTING COMPANY

Over 10,000,000 Pounds of Freight Handled Monthly
for Dallas Shippers



DALLAS, TEXAS

Merchants Cold Storage of Dallas

Bonded



1,000,000 Cu. Ft. Cold Storage Space
Pool Car Distribution

1301-7 Broom St. — 1917 N. Houston St.
P. O. Box 5088, Dallas 2

DALLAS, TEX.

Warehouses—FT. WORTH—DALLAS**TEXAS AND PACIFIC TERMINAL WAREHOUSE CO.****MERCHANDISE STORAGE—POOL CAR DISTRIBUTION**

Sprinklered A. D. T. Supervised

Cooler Rooms

Enclosed Parking lot for Customers' Automobiles and Trucks
Member SWA

LOW INSURANCE RATES

EL PASO, TEXAS

International Warehouse Co., Inc.

1601 Magoffin Ave.

El Paso, Texas

Lowest Content Insurance Rate
Fireproof Storage of Household Goods, Autos & Merchandise. State and Customs Bonded
Private Truckage—T. & P. and So. Pac. Rys
Pool Car Distribution—Motor Truck Service
Incorporated in 1920
Members—N.F.W.A.—SWA—Agent for Allied Van Lines, Inc.

FORT WORTH, TEXAS

In Fort Worth It's Binyon-O'Keefe

MERCHANDISE STORAGE—POOL CAR DISTRIBUTION
Our modern Centrally located fireproof warehouse is completely equipped to serve you with over 80,000 square feet of merchandise and household storage space.

MOVING—STORAGE—PACKING—SHIPPING



Since 1875

BINYON-O'KEEFE
Tireproof Storage Co.

Since 1875

801 Commerce St., Fort Worth 1
Associated with Distribution Service, Inc.

FORT WORTH, TEXAS

Agents—ALLIED VAN LINES, INC.

Storage, Cartage, Pool Car Distribution**O. K. Warehouse Co., Inc.**

255 W. 15th St., Fort Worth 1, Tex.



HOUSTON, TEXAS

BINYON-STRICKLAND**WAREHOUSES, INC.**

Merchandise Storage — Pool Car Distribution
Centrally Located — Lowest Insurance Rate
Private Siding Southern Pacific Ry. Co.

Goliad & Morin Sts.

Houston 13

Economic Body Sets Up Facilities for Traders

The International Economic Council has announced new services to aid out-of-town exporters and importers transact their business in Washington, D. C.

Within a few blocks of most Government Departments and Foreign Missions concerned with overseas trade developments, the Council is establishing in the Bond Building the following facilities for foreign traders: Stenographic and typing services. Conference room, telephone, desks. Library and reference materials. Translations (Arabic, French, Italian, Spanish, Portuguese). Appointments with U. S. Government Departments and Foreign Missions and Embassies. Hotel and transportation reservations, and other miscellaneous services.

In setting up these facilities, F. T. Keupp, Secretary of the Council, believes that "significant actions affecting overseas commercial affairs are now decided, and in many instances originate in the Nation's Capitol, and will so continue in the post-war period, rather than in the financial, trading and shipping circles throughout the country as in past years.

In leaflet shortly to be distributed among business firms which may have need for its services, the Council outlines its objectives and other activities. Foremost among objectives is the promotion of "public appreciation of policies that will help United States world trade; and, specifically, to sup-

October Convention

The third wartime conference of the Southwest Warehouse and Transfermen's Assn. will be held Oct. 23 and 24 at the Blackstone Hotel, Fort Worth, Texas.

port the reciprocal trade agreements program."

Members of the Council's Exporters Committee, include Elliott C. Morse, formerly president, Chrysler Corp., Export Division; Oren O. Gallup, formerly secretary, Export Managers Club of New York; Joseph A. Jones, formerly secretary, National Committee for Reciprocal Trade; John T. Clark, director of exports, Reo Motors, Inc.; C. M. Peter, general sales manager, Fellows Gear Shaper Co., and Irwin A. Vladimir, president, Vladimir and Co., and director, Export Advertising Assn.

Fork Truck Adaptations

(Continued from page 73)

lifting carriage. Lifting is accomplished by the regular mechanism of the truck, with the standard control at the operators' position.

To keep heavy dies safely stored and readily accessible, Bendix-West-

inghouse Automotive Air Brake Co., Elyria, O., makes good use of fork truck equipment. Heavy wood racks form a "filing compartment" where dies, each on an individual special wood pallet with metal surface, may be quickly stored or withdrawn without disturbing other units.

In a few minutes one man operating a fork truck can remove the proper die and deliver it where needed. Since no equipment or personnel is required, other than that regularly engaged in moving materials, there is a minimum of disruption and the entire operation becomes a part of a coordinated materials handling system.

Predicts Wider Use Of Magnesium

Postwar airplanes will be made of rolled magnesium so strong no interwing framework will be necessary, Dr. H. A. Doerner, United States Bureau of Mines, predicts.

Dr. Doerner, who recently has been working with a magnesium production process that bears his name, at Washington Agricultural College, Pullman, Wash., made this statement to the Northwest Mining Assn.

Some 2,000 tons of magnesium was produced before the war; now our national capacity is 200,000 tons. Civilian uses will be found for most of the added capacity, it is said. One-third of the present production already is going into structural material. (Haskell.)

HOUSTON, TEXAS

Member of Interlake Terminals

FEDERAL WAREHOUSE COMPANY
915 N. San Jacinto St. Houston 2, Texas
General Merchandise Storage
Pool Car Service
Fireproof Sprinklered Warehouses
Located in the heart of the wholesale district

HOUSTON, TEXAS

Better Warehousing in HOUSTON

We operate a modern low insurance rate warehouse in the center of the wholesale, jobber, rail and truck terminal district. Most conveniently located for interior jobbers' trucks; well trained personnel; cooler space.

HOUSTON CENTRAL WAREHOUSE CO.
Commerce and San Jacinto Houston 1, Texas

Represented by
NEW YORK BILLED DISTRIBUTION INC.
11 WEST 43RD ST. PENN 6-0748 CHICAGO
1525 NEWBERRY AVE. MICHIGAN 5-5530

HOUSTON, TEXAS

Houston Terminal Warehouse & Cold Storage Company
701 No. SAN JACINTO ST., HOUSTON 2
General Storage Cold Storage U. S. Custom Bonded
A. D. T. Service Pool Car Distribution
Office Space Display Space Parking Space
Lowest Insurance Rate
New York Representatives Chicago Representative
Phone Plaza 3-1235 Phone Harrison 1496

HOUSTON, TEXAS

Receiving
Weighing
Sampling
Warehousing
Forwarding

AT HOUSTON

... also Wharfingers offering
complete Shipsides Services with
berthing space for eight steamers.

HOUSTON WHARF COMPANY
(Long Reach Docks)
OWNED AND OPERATED BY GULF ATLANTIC WAREHOUSE CO.
P. O. Box 2588

HOUSTON, TEXAS

PATRICK TRANSFER & STORAGE CO.

Merchandise and Household Goods Storage

Pool Car Distribution

Sprinklered—A.D.T. Watchmen

Shipside and Uptown Warehouses

Operators—Houston Division

Lone Star Package Car Co.

1117 Vine St. Agents for Allied Van Lines, Inc.

Members N.F.W.A.

State and Local Assn.

HOUSTON, TEXAS

MERCHANDISE DISTRIBUTION

COMMERCIAL STORAGE—
OFFICE SPACE — PARKING SPACE

T. P. C. STORAGE & TRANSFER CO., INC.

2301 Commerce Ave., Houston 2

HOUSTON, TEXAS

W. E. FAIN, Owner and Manager
Established 1901

TEXAS WAREHOUSE COMPANY

Forty-three Years

Under Same Continuous Management

MERCHANDISE EXCLUSIVELY

Pool Car Distribution Sprinklered Throughout
A.D.T. Supervised Service

HOUSTON, TEXAS

Agent for Allied Van Lines, Inc.

UNION Transfer & Storage Co.

1113 Vine St. P.O. Box 305, Houston 1

Forwarding and Distributing

MERCHANDISE STORAGE

Warehouses Sprinklered Throughout

Supervised by A.D.T. Service

SERVICE THAT COUNTS

TEXAS—UTAH

HOUSTON, TEXAS

UNIVERSAL TERMINAL WAREHOUSE CO.

1006 WASHINGTON AVE., HOUSTON 1

Merchandise Storage—Pool Car Distribution

Sprinklered—A.D.T. Watchmen

—U. S. Customs Bonded—

Office Space

New York Representatives:
DISTRIBUTION SERVICE, INC.

Chicago Representatives:
DISTRIBUTION SERVICE, INC.

2 Broadway (4)

219 E. North Water St. (11)

Members A.W.A. and State and Local Associations.

HOUSTON, TEXAS

BENJ. S. HURWITZ, Pres.

WESTHEIMER

Transfer and Storage Co., Inc.

2205 McKinney Ave., Houston 1

OVER 50 YEARS IN HOUSTON

Merchandise & Household Goods Storage—Pool Car Distribution—
Lift Van Service—20 car lengths of trackage.

Fireproof Warehouses—A.D.T. Automatic Fire and Burglary Protection.

Agent for Allied Van Lines, Inc.

Members N. F. W. A.
State and Local Assoc.

SAN ANTONIO, TEXAS

MERCHANTS TRANSFER & STORAGE CO.

Household Goods

Merchants & Transfer Sts., San Antonio 6

Complete Storage and Distribution Service

Over 50 years of satisfactory service

Member of A.W.A.—N.F.W.A.—S.W.A.

SAN ANTONIO, TEXAS

Muegge-Jenull Warehouse Co.

BONDED

FIREPROOF

POOL CAR DISTRIBUTORS

STORAGE AND DRAYAGE

Dependable Service Since 1913

Shipping Tests Made With Sacked Flour Show 6 Major Causes of Damage

SHIPPING tests made by the Sperry Flour Co., Los Angeles, with wheat flour packed in 100 lb. cloth bags and transported in rail freight cars for distances varying from 500 to 2,000 miles have enabled the firm to determine six major causes of damage, in order of frequency. These are:

Tearing or breakage; dirt, cinders or coal dust; rainfall; oil; infestation; and foreign odors.

In a recently prepared report on the test runs, J. H. Flynn, mill traffic manager, Sperry Co., set forth the results of the experimental hauls and the conclusions the firm has reached.

350 to 400 Cars per Month

Shipments of the company's products into Southern California, Mr. Flynn explained, approximate 350 to 400 cars per month, about 50 per cent being handled through company warehouses. Approximately 35 per cent originate at a point 500 miles distant from Los Angeles, 31 per cent 800 miles distant, 31 per cent 1200 miles distant and 3 per cent 2000 miles distant.

Mr. Flynn stated that it was found that from one to four interchanges

between branch and main lines, or between roads with no less than the same number of switch moves, were necessary in making the hauls, all of which contributed to wear and tear on the lading. In making the test runs, the firm selected shipments handled during three months of the year, July, December and February, or one extremely dry month, one in which there is moderate rainfall, and one noted for heavy rainfall.

The report was based on approximately 180 cars about equally divided between the three months, which were grouped according to weight. One group of cars contained 60,000 to 70,000 lb., another group 71,000 to 85,000 lb., and a third group over 85,000 lb.

Analysis of Causes

In an analysis of the six causes of damage, Mr. Flynn reported on each division separately, as follows:

Damage by breakage or tearing occurs in greater frequency but not so severely per car or in total. In one group (60,000 to 70,000 lb.) the average damage was found to be three sacks per car; in group two, four

sacks per car; and in group three, eight sacks per car. Approximately 40 per cent of the cars involved in the tests came through without damage or with less than the lowest average shown.

Breakage was found to occur in several ways: because of rough handling, causing a shifting of the load and jamming of sacks against the door. Occasionally, while sacks are not torn in jamming they are when the door is opened on the unloading side.

Heavy Loads Worse

Mr. Flynn emphasized that damage was found to be greater per car in the heavier loaded cars, for which reason special door protection was installed. The heavier loaded cars came distances up to 2,000 miles and carried 1000 sacks of 100 lb. each. Over a period of several years only one car came through without damage, it was stated.

On cars damaged by dirt, cinders or coal dust, he reported that 25 cars were received in which damage was due to such causes, affecting a total of 410 sacks, or a low of two sacks per car and a high of 131 sacks.

For Shippers' Convenience, States, Cities and Firms are Arranged Alphabetically

SAN ANTONIO, TEXAS

Agent for Allied Van Lines, Inc.

Scobey Fireproof Storage Co.

311-339 North Medina St., San Antonio 7

HOUSEHOLD - MERCHANT-

DISE - COLD STORAGE -

CARTAGE

DISTRIBUTION

INSURANCE RATE - - - 10c

Members of 4 Leading Associations



SAN ANTONIO, TEXAS

BENJ. S. HURWITZ, Pres.

WESTHEIMER

Transfer and Storage Co., Inc.

2205 McKinney Ave., Houston 1

OVER 50 YEARS IN HOUSTON

Merchandise & Household Goods Storage—Pool Car Distribution—
Lift Van Service—20 car lengths of trackage.

Fireproof Warehouses—A.D.T. Automatic Fire and Burglary Protection.

Agent for Allied Van Lines, Inc.

Members N. F. W. A.
State and Local Assoc.

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Lift Van Service—20 car lengths of trackage.

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Lift Van Service—20 car lengths of trackage.

Bolt Holes

"This dirt, etc., sifts in through bolt holes, under eaves, through cracks in siding or around doors," Mr. Flynn said. "In addition to a protective paper covering over the lading, flour cars are lined, both floors and side walls, with heavy car lining paper, but dirt sifts through or under these protective coverings."

To illustrate the extent of damage by dirt, cinders and coal dust, Mr. Flynn cited one car of 600 sacks which was so badly damaged it was necessary to reject approximately 400 sacks. The car, he reported, had been adequately protected by paper covering over the lading, in addition to being fully lined, but inspection disclosed a bolt hole in the end of the car through which the coal dust and cinders had shifted.

On rainfall damage, Mr. Flynn reported there were 13 loads showing damage because of leaky cars, affecting a total of 522 sacks wet and caked, with a loss of 4 sacks per car and a high of 226 sacks, for an average of 40 sacks per car.

On damage by oil, he stated there

is a record of one car in which damage by oil occurred, affecting 110 sacks which had to be rejected because of oil stains and odor.

He reported that the company had no record of a lading being affected by foreign odor.

Conclusions

In his conclusion, Flynn stated that it is his impression that a large portion of the damage listed was caused by a general wearing out of equipment.

"Apparently," he said, "cars are used a greater length of time without a general overhauling, possibly due to a shortage of necessary manpower and material for repairs. Boards in floors and side walls become rough, splintered or broken, nails and bolts work loose in transit, causing sacks to be snagged or torn; sidings become loose and bolts work loose and drop out permitting dirt to sift in or rain water to leak into the cars. These faults are not detected at time of rail inspection prior to loading but are apparent upon arrival at destination." (Herr)

C. & O. to Use Tunnel For Cold Storage

William H. Boozer, special freight representative of the Chesapeake & Ohio Railway at Staunton, Va., has confirmed a report that the road was contemplating leasing the old Blue Ridge tunnel at Afton, Va., for cold storage purposes.

Mr. Boozer said the project is now under consideration. If the proposal goes through, many tons of fruits and vegetables could be preserved the year round. The natural temperature of the tunnel is 56 deg. and, with some mechanical conditioning could be reduced to a lower reading. The tunnel is brick lined, 4000 ft. long and presumably could be supplied with air ducts so that fresh air could be pumped in to prevent mold and rotting.

Charlottesville and Waynesboro orchardists are said to have made tentative proposals to the C. & O., and Staunton warehouse interests and growers are expected to seek participation. (Toles.)

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**Merritt Sees Style Merchandise
As Major Source of Air Tonnage**

The air express industry, after the war, will receive one of the major sources of tonnage increase from firms dealing in high-priced style merchandise, Kinsey N. Merritt, director of public relations of Railway Express Agency, declared in an address before the Los Angeles Transportation Club recently, in which he predicted that development for express service after the war will also result in increased traffic for other types of transportation.

Mr. Merritt said he anticipated that practically all samples shipped throughout the country after the war will move by air express.

"I cannot conceive," he said, "of samples moving in any other way within a few years after the war is over, because you can dramatize the delivery of style samples when they are delivered by air. A very impor-

tant consideration is that those samples will develop tons of traffic not only for air express but also for other modes of transportation."

Pointing out that war always is a developer of transportation and that the present war is one of wheels and wings, Mr. Merritt stated that travel between Europe, Asia and America some day will be almost as common as travel between the various states of this country.

He predicted that New York department stores of the future will advertise in London, and London stores in New York and other American cities.

"We know," he said, "that the land is going to be dotted with airports and airlines that are now not in existence. We know that packages shipped from Worcester, Mass., tomorrow will be delivered in Moscow, Brisbane and

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ON JOINT TRACKS CMSTP&RR AND C&NW

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WAREHOUSING AND DISTRIBUTION FACILITIES
POOL CAR DISTRIBUTION - STORAGE IN TRANSIT

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FACILITIES FOR DRUMMING BULK OILS FROM
TANK CARS

Represented by
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New York—Chicago—San Francisco

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OF EVERY AND

DESCRIPTION

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Fairbanks, and other parts of the world."

Mr. Merritt, however, took exception to the claim of many enthusiasts of air transportation that everything now moving by surface transportation will move by air after the war.

"That theory," Merritt said, "does not stand up even under the slightest research. Fifty-five per cent of all the country's transportation moving by railroad freight lines last year consisted of products of the mines. It is a bit farfetched to think that sand, ore, coal and gravel will need the speed of air transportation, even though rates should come down materially."

Mr. Merritt also pointed out that approximately 17 per cent of the business moving on rails comes from the farms and forests in the form of grain, lumber and other bulk raw products. He expressed the opinion that it will be a long time before such low-grade items will seek air transportation. He predicted, however, that in the field of edibles there will be a great expansion in air shipping when the war is over. (Herr)

All Hen Turkeys Set Aside for QM

The War Food Administration has made effective a set-aside order under which the U. S. Army Quartermaster Corps expects to obtain approximately 8,800,000 lb. of hen turkeys for the holiday dinners of American service men and women overseas. The total quantity to be obtained under this order, including some for the War Shipping Administration, will not supply the total need for turkeys to be sent overseas this year. The remaining quantity needed for overseas shipment together with the total needed for the use of armed forces and services stationed in this country, will be obtained under an embargo order, when birds hatched in 1944 are ready to be marketed.

The turkey-hen order (WFO 97) calls for the set-aside of 100 per cent of the hen turkeys processed in Minnesota, Iowa, Missouri, North and South Dakota, Nebraska, Kansas, Oklahoma, Texas, Washington, Oregon, California, Illinois, Colorado, Utah, and Rockingham County, Vir-

ginia. The hen turkeys must be slaughtered by authorized processors in these areas and thereafter held for sale and delivery to the QMC, to a wholesale receiver or for delivery to cold storage.

Maximum Accommodation Urged by NARW

"With probable greater production of all perishable foods this year," Wm. O'Keefe, executive secretary, National Assn. of Refrigerated Warehouses, a division of the American Warehouseman's Assn., stated in a recent bulletin to members, "storage offerings will undoubtedly reach an all-time high, and it behoves every member of our industry to accommodate maximum tonnage in his own facility and to inform WFA of the availability of any other suitable space in his community, such as apple houses, ice storages, idle breweries, equipped with refrigerating machinery, cooled cellars, processing plants with refrigerated rooms, air-conditioned buildings, etc."

Frank A. O'Hara, president of the

association, in a recent special letter on the subject urged members "do everything you possibly can to help in this emergency. The other fellow will do his bit, but unless each and every one of us does as much and does it now, all in the industry may later suffer the disastrous effects of too much space with too little product, and unremunerative rates that will not permit profitable operation."

Freezing Plant Leased in West

Nelson Crab & Oyster Co. has taken lease on the long-idle Glazier Bay Packing Co. plant at South Bend, Wash., and will start operations preparing crab meat for canning. The big plant, originally constructed for quick freezing of oysters, has been leased by the new owners.

Plans call for landing catches of deep sea crabs at the South Bend plant, cooking the crabs and extracting the meat for shipment to the Nelson cannery at Tokeland, where the crab meat will be canned for military and civilian markets. (Haskell)

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850 Foot Dock



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Largest in Wisconsin

18 Warehouses

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Specializing in—
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SHEBOYGAN, WIS.



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Warehouse & Forwarding Co.

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11th and Illinois Ave. Sheboygan, Wis.
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EVERY CONCEIVABLE
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Deep Water Dock, Private Siding
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For Shippers' Convenience, States, Cities and Firms are Arranged Alphabetically

D and W, July, 1944—143

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82 FRANKLIN STREET, NEW HAVEN 11, CONN.

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